

Robert M. Nally

November 2, 1998

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CONDENSED TRANSCRIPT AND CONCORDANCE
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(1) UNITED STATES INTERNATIONAL TRADE COMMISSION
 (2) WASHINGTON, D.C. 20436

(3)
 (4) BEFORE THE HONORABLE DEBRA MORRISS
 (5) ADMINISTRATIVE LAW JUDGE
 (6) INV. NO. 337-TA-412

(7)
 (8) IN THE MATTER OF
 (9) CERTAIN VIDEO GRAPHICS DISPLAY
 (10) CONTROLLERS AND PRODUCTS
 (11) CONTAINING SAME

(12)
 (13) VIDEOTAPED
 (14) ORAL DEPOSITION
 (15) OF
 (16) ROBERT M. NALLY
 (17) VOLUME I
 (18) November 2, 1998

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(1) ANSWERS AND DEPOSITION OF ROBERT
 (2) M. NALLY, produced as a witness at the
 (3) instance of the Respondent, ATI
 (4) Technologies, Inc. taken in the above-styled
 (5) and numbered cause on the 2nd day of
 (6) November, 1998 at 9:00 a.m. before Christina
 (7) Cheatham, a Certified Shorthand Reporter in
 (8) and for the State of Texas, at the Hyatt
 (9) Regency Hotel West, located at Dallas-Fort
 (10) Worth International Airport, Room 645 in the
 (11) County of Dallas, State of Texas, in
 (12) accordance with the Federal Rules of Civil
 (13) Procedure.

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APPEARANCES

(1) MR. RUSSELL B. HILL
 (2) MR. SETH E. BROWN
 (3) Morrison & Foerster, L.L.P.
 (4) 425 Market Street
 (5) San Francisco, California 94105-2482
 (6)
 (7) APPEARING FOR THE PETITIONER
 (8) MR. RUFFIN B. CORDELL
 (9) MS. LINDA LIU KORDZIEL
 (10) Fish & Richardson, P.C.
 (11) 601 Thirteenth Street N.W.
 (12) Washington, D.C. 20005
 (13) APPEARING FOR THE RESPONDENT
 (14)
 (15) ALSO PRESENT: Dick Roach, Videographer

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(1) PROCEEDINGS
 (2) VIDEOGRAPHER: We're on the
 (3) video record at 9:05. The date is 11-2-98.
 (4) This is the videotaped deposition of Robert
 (5) Nally taken by the Respondent at the Hyatt
 (6) in Dallas-Fort Worth Airport. Will the
 (7) court reporter please swear in the witness.

(8) ROBERT M. NALLY,
 (9) the witness hereinbefore named, being of
 (10) lawful age and being first duly cautioned
 (11) and sworn in the above cause, testified on
 (12) his oath as follows:

EXAMINATION

(13) BY MR. CORDELL:

(14) Q. Good morning, Mr. Nally, my name
 (15) is Ruffin Cordell. I'm with the law firm of
 (16) Fish & Richardson. I'm here on behalf of
 (17) ATI Technologies, the Respondent in this
 (18) case. I'm wondering if the reporter would
 (19) like counsel to identify themselves for the
 (20) record.

(21) VIDEOGRAPHER: If you want to.

(22) MR. CORDELL: Linda, why don't

(23) you —

(24) MS. KORDZIEL: I'm Linda Liu

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(1) Kordziel. I'm with the firm of Fish &
 (2) Richardson, and we represent ATI.
 (3) MR. HILL: Russ Hill from
 (4) Morrison & Foerster representing Cirrus, the
 (5) complainant in this action.
 (6) MR. BROWN: Ed Seth Brown from
 (7) Morrison & Foerster representing Cirrus.
 (8) Q. (By Mr. Cordell) Mr. Nally, can
 (9) you give us your full name and address for
 (10) the record?
 (11) A. Robert Marshall Nally, 203 West
 (12) Graham, McKinney, Texas, 75069.
 (13) Q. Are you currently employed?
 (14) A. Yes, I am.
 (15) Q. By whom?
 (16) A. Texas Instruments.
 (17) MR. CORDELL: Let me have the
 (18) reporter mark as Nally 1 the notice of
 (19) deposition for this morning's proceeding.
 (20) (Deposition Exhibit 1
 (21) was marked.)
 (22) Q. (By Mr. Cordell) Mr. Nally, are
 (23) you the Robert M. Nally identified on the
 (24) face of this exhibit?
 (25) A. Yes.

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(1) Q. And you are appearing today in
 (2) response to this notice; is that correct?
 (3) A. Yes.
 (4) Q. Now, you are a paid consultant
 (5) to Cirrus in this case, are you not?
 (6) A. Yes.
 (7) MR. CORDELL: Let me have the
 (8) reporter mark as Nally 2 a two-page document
 (9) bearing Bates numbers CL49364 and 65.
 (10) (Deposition Exhibit 2
 (11) was marked.)
 (12) Q. (By Mr. Cordell) Mr. Nally, can
 (13) you identify what we've marked as Nally 2?
 (14) A. Yes, a contract I signed with
 (15) Morrison & Foerster to consult.
 (16) Q. Do you recall the first occasion
 (17) upon which anyone contacted you about
 (18) consulting with Cirrus in this case?
 (19) A. About month ago, maybe. They
 (20) called me - I can't give you the exact
 (21) month, but I was called and contacted
 (22) earlier this year.
 (23) Q. Certainly it was prior to
 (24) June - July 14, 1998, correct?
 (25) A. Okay.

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(1) Q. That would be the date of
 (2) Nally 2; is that right?
 (3) A. Is it on here? Okay. Yes.
 (4) Q. And do you recall who contacted
 (5) you on behalf of Cirrus?
 (6) A. Mr. Hill.
 (7) Q. So it was actually lawyers from
 (8) Morrison & Foerster rather than someone
 (9) within Cirrus?
 (10) A. Yes.
 (11) Q. Have you communicated with
 (12) anyone within Cirrus about the subject
 (13) matter of this case?
 (14) MR. HILL: Objection to the
 (15) extent it would call for attorney/client
 (16) privileged information and I caution you not
 (17) to reveal any communications with the lawyer
 (18) for Cirrus either from my firm or in-house,
 (19) but you can answer the question.
 (20) THE WITNESS: I have not talked
 (21) to anybody but people I know that worked
 (22) there. In other words, not anything related
 (23) to this, just friends.
 (24) Q. (By Mr. Cordell) So you've had
 (25) casual conversations with current employers

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(1) of Cirrus, but nothing about this case?
 (2) A. Right.
 (3) Q. You are being paid for your time
 (4) here today, are you not?
 (5) A. Yes.
 (6) Q. And that rate is \$120 an hour?
 (7) A. Yes.
 (8) Q. Was that your idea or was that
 (9) somebody else's idea?
 (10) A. I assumed it was a part of the
 (11) contract.
 (12) Q. Well, I guess my question.
 (13) Mr. Nally, is: Did you ask to be paid for
 (14) your time?
 (15) A. Yes.
 (16) Q. You did?
 (17) A. Yes.
 (18) Q. And it wasn't that Cirrus or
 (19) someone on behalf of Cirrus approached you
 (20) and said if you consult for us we will pay
 (21) you for your time?
 (22) A. No, I asked for the money.
 (23) Q. Do you consult regularly?
 (24) A. This is my first time.
 (25) Q. You hold a BS in physics?

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(1) A. Yes.
 (2) Q. From what university?
 (3) A. University of Houston.
 (4) Q. What year was that?
 (5) A. I think it was '81.
 (6) Q. Do you hold any advanced
 (7) degrees?
 (8) A. No.
 (9) Q. What was your first job out of
 (10) the University of Houston?
 (11) A. Geosource of Houston.
 (12) Q. Are they an oil field service
 (13) company?
 (14) A. Yes.
 (15) Q. What did you do after Geosource?
 (16) A. Went to an oil company called
 (17) Logic Sciences.
 (18) Q. Where was that?
 (19) A. In Houston.
 (20) Q. What did they make?
 (21) A. They were in the oil, seismic
 (22) industry as well.
 (23) Q. What did you do after Logic?
 (24) A. Compaq.
 (25) Q. What did you do for Compaq?

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(1) A. Graphics controllers.
 (2) Q. How long were you at Compaq?
 (3) A. Five years.
 (4) Q. Do you recall which years?
 (5) A. I think it was about '84 to '91.
 (6) Q. What did you do after Compaq?
 (7) A. Cirrus Logic.
 (8) Q. How long were you employed by
 (9) Cirrus?
 (10) A. Five years.
 (11) Q. In what capacities?
 (12) A. As an architect.
 (13) Q. When did you leave Cirrus?
 (14) A. Three years ago. What was that,
 (15) about '95.
 (16) Q. What did you do when you left
 (17) Cirrus?
 (18) A. I went to TI.
 (19) Q. And that's where you are today?
 (20) A. Yes.
 (21) Q. Let's go back over some of your
 (22) employment activity.
 (23) Well, first of all, you have
 (24) been deposed before, correct?
 (25) A. Yes.

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(1) Q. How many times?
 (2) A. Once.
 (3) Q. And that would be in the
 (4) Brooktree S-3 litigation?
 (5) A. Yes.
 (6) Q. Do you recall which party
 (7) noticed your deposition in that case?
 (8) A. S-3 is the one who deposed me or
 (9) called me.
 (10) Q. Although you have been deposed
 (11) before, let me just say that if at any time
 (12) one of my questions is unclear or if you
 (13) feel like you need a break or something
 (14) please let us know. We are just here to get
 (15) some information.
 (16) We certainly don't want to make
 (17) this any more difficult than it has to be.
 (18) Although at times the lawyers will try to
 (19) make it as difficult as it has to be, that's
 (20) kind of our job, but we'll try to leave you
 (21) out of that, if we can.
 (22) Do you recall the projects you
 (23) worked on at Compaq?
 (24) A. Yes.
 (25) Q. Can you describe the first one?

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(1) A. The first one was EGA
 (2) controller, which is the generation before
 (3) VGA.
 (4) Q. Back in the ancient hunting
 (5) days?
 (6) A. Yes, this is back before
 (7) Windows. This is when it was a DOS world.
 (8) Q. Back when the computers made
 (9) sense?
 (10) A. I guess.
 (11) Q. Okay. What did you do on the
 (12) EGA controller?
 (13) A. I actually was the system level
 (14) architect. I designed the board. I
 (15) designed how it fit into the system.
 (16) Q. What did you do after the EGA
 (17) controller?
 (18) A. VGA.
 (19) Q. Was that the first VGA
 (20) controller that Compaq had done?
 (21) A. Yes.
 (22) Q. Did you head a team for that?
 (23) A. I was part of the team.
 (24) Q. What portion of the VGA
 (25) controller did you have responsibility?

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(1) A. It was, once again, the same
 (2) thing, system level integration.
 (3) Q. What did you do after the VGA
 (4) controller?
 (5) A. I put forth a proposal and did
 (6) what they called AGS 1024 which was a high
 (7) advance board, and that was my first patent.
 (8) Q. Okay. The AGS 1024, was that a
 (9) graphics-only board?
 (10) A. Yes.
 (11) Q. Was the AGS 1024 intended to
 (12) address any particular market segment?
 (13) A. Yes, the CAD CAM market and the
 (14) new emerging Windows market.
 (15) Q. Was the AGS 1024 ever sold as
 (16) commercial product?
 (17) A. Yes, it was.
 (18) Q. And what was that called?
 (19) A. The AGS 1024.
 (20) Q. Catchy name.
 (21) Now, you mentioned that was your
 (22) first patent. Do you recall the patent
 (23) number?
 (24) A. No, I don't.
 (25) Q. Do you recall the title?

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(1) A. It was long. I don't.
 (2) Q. And it was assigned to Compaq?
 (3) A. Yes.
 (4) Q. You are listed as an inventor on
 (5) quite a number of patents; isn't that right?
 (6) A. Yes.
 (7) Q. Do you happen to know how many?
 (8) A. In excess of 12. I do not know
 (9) the exact number.
 (10) Q. You are pretty familiar with the
 (11) patent process?
 (12) A. Yes.
 (13) Q. Tell me a little bit about the
 (14) AGS 1024, and I don't want to get into too
 (15) much of the minute detail because I don't
 (16) want to get into too much of Compaq's
 (17) confidential information, but certainly
 (18) some — there is some level of detail that
 (19) Compaq publishes about the AGS 1024?
 (20) A. Yes.
 (21) Q. So maybe you could just focus on
 (22) that for a moment if you can. Do you recall
 (23) whether or not the AGS 1024 had its own
 (24) display memory?
 (25) A. Yes.

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(1) Q. And was that a megabyte or
 (2) above?
 (3) MR. HILL: Counsel, I just want
 (4) to have the record reflect that we want to
 (5) designate this transcript as confidential.
 (6) To the extent that it is, of course, we'll
 (7) redesignate public portions.
 (8) THE WITNESS: It had a one meg
 (9) frame buffer.
 (10) Q. (By Mr. Cordell) Are you
 (11) familiar with the term frontend processing?
 (12) A. Yes.
 (13) Q. Did the AGS 1024 utilize
 (14) frontend processing?
 (15) A. It was a frontend processor.
 (16) Q. Did it have any backend
 (17) processing?
 (18) A. No.
 (19) Q. So the data contained in the
 (20) display memory was fed directly to the DAC
 (21) and then out to a monitor?
 (22) A. Right.
 (23) Q. Did the 1024 have any video
 (24) capability?
 (25) A. No.

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(1) Q. Well, certainly there were video
 (2) boards that could work in conjunction with
 (3) the 1024, correct?
 (4) A. No, we didn't have any hooks in
 (5) it for anybody to hook anything like that
 (6) in.
 (7) Q. Are you aware of any application
 (8) in which the host processor would color
 (9) space convert video into RGB data and then
 (10) store it in the frame buffer of the 1024?
 (11) A. Yeah, that could be done.
 (12) Q. But are you aware of any
 (13) application where it was done?
 (14) A. No.
 (15) Q. How long did you work on the
 (16) 1024?
 (17) A. There was two generations. The
 (18) first generation we worked on it for a
 (19) year. The second generation they killed the
 (20) program after about six months.
 (21) Q. Do you recall sort of the
 (22) relative time frame of those two projects?
 (23) A. Yeah, it was about — they shut
 (24) it down about a year before I left, which
 (25) made it — it ran from about '88 through the

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(1) middle of '89, maybe '90.
 (2) Q. What did you do after the 1024?
 (3) A. That's went I moved into video.
 (4) They put me in the -- they gave me a team to go off and research multimedia.
 (5) Q. How many people were on the team?
 (6) A. Two - three counting myself.
 (7) Q. Who were the other two people?
 (8) A. Gwen Gowdy and Mueller - what was his first name? Curt Mueller, Curtis Mueller.
 (9) Q. Can you describe the nature of the project?
 (10) A. We really was looking at the Intel 750, which was a multimedia processor at the time and trying to understand how they was handling compressed and decompressing video data.
 (11) Q. Do you recall which incarnation of the 750 chip you were focusing on?
 (12) A. It was the first one. It was when they had two chips. It was a system - it was very early in their design. It was a two-chip system and I can't remember.

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(1) Q. 750 DB or -
 (2) A. Something like that. I can't remember.
 (3) Q. You should come up with trademarks for these things, you know, Mustang or something.
 (4) A. Yeah.
 (5) Q. Did your work - well, perhaps could it have been the 750 PD and PB?
 (6) A. I can't answer that.
 (7) Q. Did your work on multimedia for Compaq result in any kind of a report?
 (8) A. No. More than anything else we put together a Comdex demo.
 (9) Q. And what was the Comdex demo?
 (10) A. It was an interactive multimedia.
 (11) Q. And which show?
 (12) A. Was it '90 or '91?
 (13) Q. Fall or spring.
 (14) A. Oh, it was the fall.
 (15) Q. Fall of '91?
 (16) A. I think it was the last year that Compaq went to Comdex.
 (17) Q. They don't go to Comdex anymore?

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(1) A. No, not that I know of.
 (2) Q. Splitters.
 (3) Well, can you describe the demo? Was it on a PC?
 (4) A. Yes.
 (5) Q. And did you demonstrate the capability of displaying both graphics and video?
 (6) A. Yes.
 (7) Q. What part did you use to accomplish your demo?
 (8) A. I don't understand the question.
 (9) Q. Well, was there a particular video accelerator or graphics accelerator that you used to put the demo together?
 (10) A. No, the demo was strictly on the Intel product.
 (11) Q. In the demo did the Intel product utilize a frame buffer of any kind?
 (12) A. Yes.
 (13) Q. And did it have a separate frame buffer for video and graphics?
 (14) A. They treated them both just the same. It was compressed data.
 (15) Q. Let's kind of walk through that,

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(1) then. You say it treated them both the same. Did it store the compressed data in its native format?
 (2) A. I don't think that - it was stored in the system memory in some format
 (3) that they called RTV and they decompressed
 (4) RTV to RGB and it was stored in a frame
 (5) buffer as RGB.
 (6) Q. Well, what about the video
 (7) signal? Was that also -
 (8) A. That's what I'm talking about.
 (9) There was no video signal. Video was
 (10) precompressed. In other words, it was
 (11) compressed data just like MPEG data and when
 (12) its played back, it played back, you know,
 (13) nonreal time.
 (14) Q. Well, let's just try to get our
 (15) definitions down. You know in this case
 (16) there is an issue relating to something
 (17) called video data; are you aware of that?
 (18) A. Yes.
 (19) Q. Can you tell us what your
 (20) understanding of video data is?
 (21) A. There are two kinds of video
 (22) data, real time video data which comes from

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(1) an external source, which cannot be interrupted. In other words, if you --
 (2) something happens that you can't process all of the data you lose it. The other is
 (3) playback data. Playback data is decompressed data. If you get behind you drop a frame, you know, you can recover.
 (4) That's the difference between the two.
 (5) Q. So an example of real time data
 (6) would be a feed from a video camera, for example?
 (7) A. Yes.
 (8) Q. Would it also include things like stringed video over the Internet?
 (9) A. If it's not compressed, and I
 (10) don't think you can send video over the Internet noncompressed.
 (11) Q. Certainly would take a long time?
 (12) A. Right.
 (13) Q. With respect to the Comdex demonstration you did for Compaq do you recall whether or not that system could play real time video data?
 (14) A. No, it could not.

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(1) Q. Do you recall whether or not that system could play playback video data?
 (2) A. That's what it played.
 (3) Q. Now, in setting forth your understanding of the term video data I note that you didn't make reference to any particular format for the data. Is the format of the data relevant in terms of its color space, for example?
 (4) A. It depends on how you process it.
 (5) Q. Okay. I'm just kind of trying to establish some definitions. And it is certainly possible that someone would look at a piece of YUV format data and identify it as video, would you?
 (6) A. Yes, they would - most people do associate YUV with video.
 (7) Q. Is it your testimony that playback data that has been color space converted into RGB data by the host processor remains video data in the display system?
 (8) A. In my opinion, yes.
 (9) Q. How do you differentiate video

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- (1) data from graphics data?
 (2) A. Graphics data is constructed from models. Video data is derived from an image or a picture, even if it's been compressed before. Once it's decompressed, it's video data.
 (7) Q. So you really differentiate between video and graphics based on the source of the data?
 (10) A. Yes.
 (11) Q. In the case of the I-750 demonstration you did for Compaq was it able to display video data?
 (14) A. Yes.
 (15) Q. What kind?
 (16) A. Playback.
 (17) Q. Playback only?
 (18) A. We actually had to send the data off to Intel to get it compressed.
 (19) Q. So the I-750 did not have a capability to prepare its own data?
 (22) A. That's right.
 (23) Q. Do you recall where the data set for the demonstration was stored long term?
 (24) MR. HILL: Objection.

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- (1) Q. (By Mr. Cordell) In other words, was there a hard disk? Did you have a tape?
 (4) A. It was on hard disk.
 (5) Q. And this was some kind of a Compaq PC?
 (6) A. Yes.
 (8) Q. Was there a routine used to run the demonstration?
 (10) A. Could you be more -
 (11) Q. Well, I'm hoping this is still in the DOS time frame. Did you type in a command that started the demonstration?
 (14) A. Yes.
 (15) Q. And do you recall the routine that responded to that command?
 (17) A. No.
 (18) Q. Certainly there was some kind of software that ran the demo?
 (20) A. It was the software that Intel provided with their chip.
 (21) Q. Did the I-750 demonstration at Comdex display graphics data?
 (24) A. Yes.
 (25) Q. Did it display graphics data at

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- (1) the same time it was displaying video data?
 (2) A. Yes.
 (3) Q. Did the frame buffer for the I-750 demonstration at Comdex hold both graphics data and video data at the same time?
 (7) A. Yes.
 (8) Q. Can you tell me a little bit about the way the frame buffer for the I-750 at the demonstration was organized?
 (11) MR. HILL: Object to form.
 (12) THE WITNESS: All we knew it by was RTV and that was the compressed form. It was an RGB space. In other words, the video was RGB data as far as we knew and once it was decompressed and put in a frame buffer it was just like any other Window, in my opinion.
 (19) Q. (By Mr. Cordell) Was this a Windows system or was it DOS?
 (20) A. Yes, it was. It was - you can call it a Windows system. It wasn't Windows as we know it today. It was in the early ages or the early development stages of a Windows system. In other words, it was

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- (1) multithreaded, is the best way to describe it.
 (3) Q. Multithreaded. Do you recall the year? I think you told us, but I have just forgotten. Was it '91?
 (6) A. It had to be before '91, '89 or '90, somewhere in there.
 (8) Q. In the display demonstration at the Comdex show did the system have a primary display surface?
 (11) A. It only had one display surface and that would be primary.
 (13) Q. I think you mentioned that there were multiple Windows; is that true?
 (15) A. Yes.
 (16) Q. Would you characterize any of the Windows as a secondary display surface?
 (17) A. I don't think you could. I'm not that familiar with their architecture to be able to do that.
 (21) Q. Well, I'm just trying to get an understanding of the way the frame buffer relates to the display. Do you recall how large the display was in terms of its memory requirements for the Intel?

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- (1) A. No.
 (2) Q. Do you recall whether or not the frame buffer provided for the Comdex demonstration system exceeded the capacity required to produce a display?
 (6) A. Yes, they did because they stored all of their code. Remember that was a processor. They had theirs stored and everything. Really you could say that everything was stored there. They - that was a processor and it had its code and everything stored in the same memory.
 (13) Q. So given that the I-750 was in effect a microprocessor it had to have software instructions in order to operate and those software instructions were also stored in the frame buffer?
 (18) A. Right.
 (19) Q. Do you recall whether or not additional display information was stored in the frame buffer but was not being displayed on the screen itself?
 (23) A. You could put fonts and stuff like that off screen.
 (24) Q. Did this frame buffer have a

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- (1) structure that you would call on-screen memory?
 (3) A. Yes.
 (4) Q. Can you describe that on-screen memory?
 (6) A. On-screen memory was what was actually a portion of the memory that was rastered out to the display device.
 (9) Q. Was there a register or some other physical delineation between on-screen and off-screen memory?
 (12) A. I don't recall. I don't think there - I mean, it was just before you set the pointers, and I can't remember.
 (15) Q. So in the I-750 you had a pointer that indicated the beginning of the on-screen memory and a either a counter or another pointer that indicated the end of the on-screen memory?
 (20) A. Right.
 (21) Q. In fact, that's a pretty standard practice, isn't it?
 (23) A. Yes.
 (24) Q. Did the I-750 have the ability to pan around a display data set?

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(1) A. I can't recall. I don't think
 (2) so.
 (3) Q. Well, I won't demand a minute
 (4) level of detail, but can you describe for us
 (5) what was being shown on the demo?
 (6) A. Yeah, what we did is we put a
 (7) graph up showing the TI - I mean the Compaq
 (8) growth curve and we put little buttons on
 (9) there. It was what you call a kiosk system,
 (10) and the little buttons if they clicked the
 (11) button, a video window popped up and John
 (12) Cletus - if you remember the John Cletus
 (13) commercials, John Cletus came up and did one
 (14) of his commercials for that time period.
 (15) Q. Those marketing guys, I tell
 (16) you.
 (17) A. Yeah.
 (18) Q. Well, would you characterize the
 (19) commercials as a video window?
 (20) A. Yes.
 (21) Q. Do you recall whether or not --
 (22) well, let me strike that.
 (23) Do you recall how that was
 (24) accomplished?
 (25) A. It was - they had a frontend

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(1) processor that decompressed the data and put
 (2) it in the window and what it amounts to is
 (3) that they had - the frontend processor was
 (4) a processor. It had the compressed data,
 (5) the code for decompressing the data and
 (6) everything off screen. It would take the
 (7) compressed data and decompress it and put it
 (8) in the video window.
 (9) Q. When you say put it in the video
 (10) window, did it place it within the fields
 (11) that we previously defined as on-screen
 (12) memory?
 (13) A. Yeah, it's a double buffered
 (14) type thing. We had to keep two images. And
 (15) every time you construct the image you had
 (16) to flip the buffers.
 (17) Q. Did you use a BLT operation to
 (18) do that?
 (19) A. I wouldn't call it so much as a
 (20) BLT operation as I would a decompress
 (21) operation.
 (22) Q. Well, you just described a dual
 (23) buffering, and I guess my question is really
 (24) whether or not you were creating two
 (25) complete active display buffer sections or

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(1) were you simply constructing the video
 (2) portion and swapping it with what had
 (3) previously been graphics?
 (4) A. If I remember right we actually
 (5) had two full frames and every frame we
 (6) flipped them and they were identical, all of
 (7) the graphics in both of them were identical.
 (8) Q. What sometimes people will call
 (9) a ping pong buffering scheme?
 (10) A. Yeah, other people call it a
 (11) double buffering scheme.
 (12) Q. And the idea there is that you
 (13) are able to update the inactive buffer while
 (14) the active buffer is being rastered out?
 (15) A. Right.
 (16) Q. So if I'm understanding you
 (17) correctly the way that video was placed into
 (18) the active display is that it would be
 (19) written into the inactive buffer in place of
 (20) the graphics, correct?
 (21) A. In place of the graphics?
 (22) Q. Right.
 (23) A. I don't understand the question.
 (24) Q. Well, certainly in the example
 (25) you described when someone clicked on the

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(1) box and the video window would pop up, it
 (2) would pop up at a particular set of pixel
 (3) locations on the display?
 (4) A. Right.
 (5) Q. And those pixel locations
 (6) corresponded to particular locations within
 (7) the active buffer, correct?
 (8) A. Right.
 (9) Q. And my question is really how
 (10) did - what happened to the graphics that
 (11) were in that range of Pixels?
 (12) A. Okay. It was destroyed and when
 (13) the window went away it had to be
 (14) reconstructed.
 (15) Q. You didn't transfer those or
 (16) transfer that pixel data to an off-screen
 (17) location for future reference or anything
 (18) like that?
 (19) A. I'm not sure if my programmers
 (20) cut and passed or just obliterated and
 (21) reconstructed. I can't say which way - you
 (22) can do it either way.
 (23) Q. Now, with respect to the video
 (24) window itself you described that the I-750
 (25) would perform this decompression operation.

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(1) correct? So the user comes up and punches
 (2) on the little box and the processor then
 (3) grabs whatever video data was associated
 (4) with that box and begins the decompression
 (5) operation?
 (6) A. Right.
 (7) Q. Where does it go to get the
 (8) video data, the compressed video data?
 (9) A. Where does it go?
 (10) Q. Where is it stored?
 (11) A. It's stored in the hard disk.
 (12) Q. Stored in the hard disk?
 (13) A. Yes.
 (14) Q. It's transferred from the hard
 (15) disk, then, to the frame buffer?
 (16) A. Yes.
 (17) Q. And it's transferred from the
 (18) hard disk to the frame buffer in compressed
 (19) form, correct?
 (20) A. Yes.
 (21) Q. Then the I-750 processor
 (22) decompresses it, correct?
 (23) A. Right.
 (24) Q. Well, when it's stored from the
 (25) hard disk to the frame buffer in compressed

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(1) form where physically within the frame
 (2) buffer is it stored?
 (3) A. Off screen.
 (4) Q. So in off-screen memory?
 (5) A. Right.
 (6) Q. After the I-750 processor
 (7) decompresses the video data where is it
 (8) stored?
 (9) A. On screen.
 (10) Q. So it goes from off screen
 (11) through the processor for decompression and
 (12) then it's put into the inactive buffer in
 (13) the on-screen memory, correct?
 (14) A. Right.
 (15) Q. Can you describe for us the
 (16) elements that lay between the frame buffer
 (17) and the display monitor in the demonstration
 (18) system at the Comdex show?
 (19) A. It was just a CRT controller.
 (20) Q. Did that CRT controller -
 (21) A. And DAC.
 (22) Q. Well, physically was there an
 (23) element downstream of the frame buffer to
 (24) collect data that was being pipelined out to
 (25) the CRT?

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(1) A. I considered that part of the CRT controller.
 (2) Q. Did that CRT controller, then, include a display FIFO?
 (3) A. I'm pretty sure it did. This is - we're talking about Intel proprietary information. I mean, is there a hardware? I do not know exactly what they did inside their chip.
 (4) Q. Okay.
 (5) A. I'm just assuming.
 (6) Q. Okay. Well, it's important that you tell us that. I'll certainly appreciate any information you can help us with. But if it's something you're not sure about, be sure to point that out.
 (7) A. All right.
 (8) Q. I take it the CRT controller included some kind of color look up table?
 (9) A. I would assume.
 (10) Q. And I take it the CRT controller worked with the Intel I-750 in choosing what pixels would be displayed on the screen, correct?
 (11) A. It was part of this I-750. They

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(1) other were doing. And that's all I can remember at this time.
 (2) Q. Now, the display that you created there at the Comdex show was seen by a number of people, correct?
 (3) A. Yes.
 (4) Q. Can you estimate how many?
 (5) A. I guess millions. I don't know. How many people go to Comdex?
 (6) Q. Seems like millions.
 (7) A. Right, it was thousands of people.
 (8) Q. And the purpose of this display was to sell Compaq computers, correct?
 (9) A. Really the purpose of this display was to demonstrate Compaq's - this particular display was to demonstrate Compaq's leadership in technology.
 (10) Q. Well, but I mean Compaq is in it for the money, correct?
 (11) A. They're in it for the money.
 (12) Q. And they're looking to sell product?
 (13) A. Right.
 (14) Q. I mean, this wasn't some

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(1) Had two chips; one is a frontend chip and the other one is a backend chip at that time. The backend chip handled all the rastering to the screen.
 (2) Q. Did the backend chip issue memory requests for retrieval of data out of the frame buffer?
 (3) A. That was based on a VRAM architecture, so it was a row drop technique, if you're familiar with it.
 (4) Q. And by that you mean that an initial address is specified and the data is simply rastered up continuously following that address?
 (5) A. Right.
 (6) Q. And in fact, repeats until some additional instruction comes in to change the sequence?
 (7) A. Right.
 (8) Q. And what was the term you used to define the VRAM architecture?
 (9) A. A row drop. You have your memory and what you do is you drop a whole raster line into your output buffer and you raster out of the output buffer with just

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(1) altruistic display they were putting on?
 (2) A. No.
 (3) Q. Did the Compaq system in question have a particular name or trademark?
 (4) A. We just used the standard Compaq desk pro at the time.
 (5) Q. I was really speaking with respect to the display system you constructed. Did you call it the Compaq superduper video -
 (6) A. No, we didn't call it anything because really we bought the boards from Intel. We used their boards. We didn't - no hardware at all. We just bought their boards, their software, put the demo together just so we could learn what it took to put a demo together, how to use that kind of technology. We didn't - Compaq didn't do anything but put the demo together.
 (7) Q. Did what Intel told you to do?
 (8) A. Basically.
 (9) Q. Okay. Do you recall what your next project at Compaq was?
 (10) A. I left Compaq at that - during

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(1) the clock.
 (2) Q. I see. So an entire row advances into the output buffer with each new, I guess, row count?
 (3) A. Right.
 (4) Q. Now, you identified the two parts and we may have some documentation to help us with this, but do you recall any particular names that have been given to the two parts?
 (5) A. That was a long time ago.
 (6) Q. Understood. Can we call them the frontend part and the backend part?
 (7) A. It was definitely a frontend processor and a backend processor.
 (8) Q. Do you recall what elements the backend processor included in terms of its data handling capability?
 (9) A. Yeah, in that time frame it was pretty much just a RAM DAC color look up table and the interface to the VRAM serial port, and I can't remember - there was some communications between the two processors.
 (10) I don't know what that was, some clocking information. They had to know what each

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(1) that time.
 (2) Q. Did you conclude out of your work with Compaq that multimedia was here to stay?
 (3) A. That's why I left.
 (4) Q. Did you not think Compaq had the capability to pursue multimedia?
 (5) A. I saw where the money was going to be made, so I went to where I thought the money was going to be made.
 (6) Q. Where did you think the money was going to be made?
 (7) A. By the chip manufacturers.
 (8) Q. Was there any particular fact that led you to that conclusion?
 (9) A. Yeah, because at that time those kind of systems were too expensive and you had to incorporate the system into the chips.
 (10) Q. Well, what kinds of systems existed at the time you left Compaq?
 (11) A. There were really board level products. Most of them were what I call gin lock. Video was demonstrated - video was overlayed with gin locking techniques.

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(1) multiple frame buffers were always
 (2) employed. Usually it was a board that
 (3) clutched in on top of the existing graphic
 (4) system.
 (5) Q. Can you recall any particular
 (6) vendors that existed at the time you left
 (7) Compaq?
 (8) A. Mediographics. Viewlogic - is
 (9) it Viewlogic, I think was the name of the
 (10) company, out of England. And of course
 (11) Intel was trying to get into that business
 (12) at the time. That's the only ones I can
 (13) really remember.
 (14) Q. Have you ever heard of a system
 (15) called a video toaster?
 (16) A. Yes, video toaster came later.
 (17) It was in the Mac world.
 (18) Q. It was in the Mac world? Didn't
 (19) run into it in the old Amiga systems?
 (20) A. Was it Amiga or Mac? It was one
 (21) of those. I thought it was Mac.
 (22) Q. I have been looking for one.
 (23) So you left Compaq because you
 (24) concluded that the money was in the chips
 (25) and you chose Pixel?

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(1) A. Yes.
 (2) Q. Why did you choose Pixel?
 (3) A. Because they just bought this
 (4) company called - well, Cirrus just bought
 (5) Pixel. Cirrus hired me to go to Pixel to be
 (6) their architect. They had a lot of talented
 (7) people there, but they didn't have the
 (8) system level expertise.
 (9) Q. You began your employment with
 (10) Pixel in 19 -
 (11) A. I think '91.
 (12) Q. What was your first project
 (13) through Pixel?
 (14) A. 2070.
 (15) Q. What was the 2070?
 (16) A. It was a video processor.
 (17) Q. What was your next project?
 (18) A. The 2085.
 (19) Q. What was the 2085?
 (20) A. That was the media DAC, which
 (21) went with the 2070, and once again you are
 (22) talking about a frontend processor, backend
 (23) processor.
 (24) Q. Sort of akin to the Intel
 (25) frontend and backend chips?

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(1) A. Yes.
 (2) Q. What did you do after the 2085?
 (3) A. That's when I started to work on
 (4) the 5440.
 (5) Q. And the 5440 is the part that
 (6) resulted in the 525 patent, correct?
 (7) A. Yes.
 (8) Q. What did you do after the 5440?
 (9) A. I went to work on putting
 (10) together something called VPM, which was the
 (11) ground work for what is Direct X today.
 (12) Q. What did VPM stand for?
 (13) A. Video port manager.
 (14) Q. Was this some kind of a
 (15) specification?
 (16) A. What it was is it was software
 (17) that fit into the Microsoft motif that
 (18) allowed you to control the features of the
 (19) 5440. In other words, the real time data.
 (20) At that point no software out there other
 (21) than the people who sold the boards designed
 (22) their own hardware and sold it as a
 (23) package. At that point you couldn't buy any
 (24) shrinkwrap software to actually control
 (25) video coming in through a video port in a

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(1) windowing system.
 (2) Q. And when did you do the VPM?
 (3) A. That was while Schafer was
 (4) actually working on the 5440 and I was
 (5) working parallel with him.
 (6) Q. Can you give us a relative time
 (7) frame? '92? '93? '97?
 (8) A. I think it was during '94.
 (9) Q. What did you do after the VPM?
 (10) A. After that I did a lot of
 (11) marketing work, promoting these products,
 (12) trying to pull the Cirrus Logic product
 (13) families together. I started working with
 (14) the portable guys to try to get them to use
 (15) this technology. I was working with the
 (16) Cirrus Logic Media Crystal people trying to
 (17) mix video and audio into systems.
 (18) Q. When did you begin your
 (19) marketing work?
 (20) A. I actually began that at the
 (21) same time I was doing the VPM. They were
 (22) kind of concurrent, so as soon as I finished
 (23) the spec on the 5440 and we had something to
 (24) go out and show people, I was actually doing
 (25) marketing work.

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(1) Q. Okay. At the conclusion of your
 (2) marketing work did you do anything else for
 (3) Cirrus?
 (4) A. At that point I was more or less
 (5) just - you could say an in-house advisor.
 (6) I was involved in a lot of decisions in the
 (7) area of video and multimedia.
 (8) Q. And when did you leave Cirrus?
 (9) A. I think it was '95 or '96. I
 (10) can't remember exactly. I can tell you what
 (11) day, but I can't tell you what year.
 (12) Q. What day?
 (13) A. March 11th, the day of my
 (14) birthday.
 (15) Q. I was about to ask you -
 (16) MR. HILL: That's my son's
 (17) birthday.
 (18) Q. (By Mr. Cordell) Was there
 (19) anything that lead you to leave Cirrus?
 (20) A. I don't really know if I should
 (21) answer that. I just saw trouble coming for
 (22) the company.
 (23) Q. I don't mean to make you
 (24) uncomfortable, and if need be you can secure
 (25) the protections of the protective order as

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(1) well and we can designate a portion of this
 (2) transcript confidential so that Cirrus'
 (3) people can't see it, just like ATI's people
 (4) can't see it. Can you tell me sort of what
 (5) the trouble related to?
 (6) A. I would rather not.
 (7) Q. Okay. Well, can you tell me was
 (8) it something personal or was it something
 (9) financial?
 (10) A. Oh, no. It was - let's say I
 (11) didn't agree with upper management. I think
 (12) upper management made some mistakes.
 (13) Q. And these mistakes were related
 (14) to the management of the business, correct?
 (15) A. Right.
 (16) Q. And given Cirrus' current state
 (17) of affairs in the graphics business, maybe
 (18) you were right; is that a fair statement?
 (19) A. You could say that, I guess.
 (20) Q. All right. I would like to go
 (21) through your sort of products here at Cirrus
 (22) in a little more detail. Can you give us an
 (23) idea of the market that the 2070 was
 (24) intended to address?
 (25) A. It was designed for the

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(1) teleconferencing industry.
 (2) Q. Did it have a particular feature
 (3) set that made it suitable for
 (4) teleconferencing?
 (5) A. Yes.
 (6) Q. What were those features?
 (7) A. Multiple video windows.
 (8) Q. How many?
 (9) A. Four.
 (10) Q. Did the 2070 utilize a single
 (11) frame buffer to support all four windows?
 (12) A. Yes.
 (13) Q. Did the 2070 have text messaging
 (14) capability?
 (15) A. No.
 (16) Q. Did it have any graphics
 (17) processing at all?
 (18) A. No.
 (19) Q. So what the 2070 did is that it
 (20) took multiple video streams, processed them,
 (21) and prepared them for display?
 (22) A. Yes.
 (23) Q. Now, if memory serves, the 2070
 (24) could actually handle up to eight
 (25) simultaneous windows in the buffer?

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(1) A. It had the ability to manage –
 (2) it could only take – handle four windows.
 (3) It can only take two streams. It only had
 (4) two stream inputs, but it had the ability
 (5) because of the eight buffers, to process
 (6) that stream eight different ways in a
 (7) pipeline fashion.
 (8) Q. But the maximum that it could
 (9) output were four windows, correct?
 (10) A. Yes.
 (11) Q. Now, was each window processed
 (12) independently?
 (13) A. Yes.
 (14) Q. And by independently do you mean
 (15) to suggest that there were four separate
 (16) pipelines, as I think you described,
 (17) operating at the same time?
 (18) A. The best way to describe it was
 (19) four windowing systems operating at the same
 (20) time.
 (21) Q. But when you say at the same
 (22) time do you mean that there were duplicative
 (23) processing engines present in the 2070?
 (24) A. What do you mean by
 (25) duplicative?

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(1) Q. More than one or did they take
 (2) turns in a time division multiplexing?
 (3) A. No, there were actually four.
 (4) Q. There were actually four
 (5) engines?
 (6) A. Yes.
 (7) Q. Did the 2070 have the ability to
 (8) interpolate between pixels?
 (9) A. Yes.
 (10) Q. Did it utilize a dual frame –
 (11) strike that.
 (12) Did it utilize a dual FIFO
 (13) structure to conduct an interpolation?
 (14) A. The thing to remember is there
 (15) was two different ways of interpolation;
 (16) decimation and zooming. On the backend it
 (17) could only zoom and it could not zoom by
 (18) itself. It had to have the assistance of
 (19) the other processor.
 (20) Q. Was the 2070 a frontend or a
 (21) backend part?
 (22) A. It was a frontend.
 (23) Q. Okay. Well, let's take them
 (24) each in turn. With respect to decimation
 (25) did the 2070 utilize a dual FIFO approach?

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(1) A. What do you mean by dual FIFO?
 (2) Q. I have certainly seen a number
 (3) of systems wherein two adjacent lines of
 (4) data are stored in dual FIFOs.
 (5) A. Okay.
 (6) Q. And then interpolation is
 (7) conducted between the data sets and those
 (8) two FIFOs. Is that the way the 2070 worked?
 (9) A. On the back – you are talking
 (10) about actually backend, not frontend.
 (11) Q. Yes.
 (12) A. It's a little bit different than
 (13) that because the actual interpolation was
 (14) done in the 2085, okay. And the FIFO was
 (15) actually in the 2085 and there was only one
 (16) FIFO.
 (17) Q. So the 2070 was really there to
 (18) receive and synchronize the various video
 (19) streams?
 (20) A. It actually sent across the
 (21) interface what we call a code word, four bit
 (22) codes, telling the other processor how to
 (23) interpolate or what to do with that data.
 (24) MR. HILL: Counsel, we've been
 (25) going on for an hour now. Could you speed

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(1) along to something relevant to the –
 (2) MR. CORDELL: Counsel, I
 (3) certainly have been, and if you find this
 (4) irrelevant, that's all the better.
 (5) Q. (By Mr. Cordell) Mr. Nally, can
 (6) you describe the memory requirements of the
 (7) 2070?
 (8) A. It was VRAM.
 (9) Q. What size was the frame buffer?
 (10) A. I think we could support – I
 (11) can't recall. It was – minimum was one
 (12) meg. I can't remember what the max was.
 (13) Q. You discussed two different
 (14) kinds of video data earlier today, and I
 (15) believe the distinctions were playback
 (16) versus live video. Do you recall that?
 (17) A. Uh-huh.
 (18) Q. Did the 2070 have the capability
 (19) of handling playback video data?
 (20) A. No.
 (21) Q. So it was strictly a live video
 (22) device?
 (23) A. Yes.
 (24) Q. The 2070 was not utilized with a
 (25) PCI bus interface?

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(1) A. Well, I think it was a PCI.
 (2) Q. It was a PCI.
 (3) Was there any concept of PCI
 (4) apertures used with the 2070?
 (5) A. No.
 (6) Q. And again that's because it's a
 (7) live video feed?
 (8) A. Yes.
 (9) Q. How were addresses assigned to
 (10) the live video feed in the 2070?
 (11) A. You had – on the frontend you
 (12) had the four buffers, as you call them four
 (13) buffers, and really what those four
 (14) buffers – not four but eight, there were
 (15) eight input windowing schemes, four output
 (16) windowing schemes.
 (17) What you do is coming from the
 (18) frontend processor, which was the
 (19) interpolator, we had a little like a cross
 (20) bar switch that would connect that process
 (21) center to an input window. The input window
 (22) would determine where it went to in the
 (23) frame buffer.
 (24) Q. Okay. You say the input window
 (25) would, but I understood the input window to

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(1) be something like a frame buffer, sort of a
 (2) mini frame buffer.
 (3) A. The input window was to — what
 (4) you called while ago eight buffers —
 (5) Q. Okay.
 (6) A. — there's eight windowing
 (7) schemes for putting — in other words,
 (8) there's eight little mini raster engines for
 (9) rastering the video into the frame buffer.
 (10) Q. And these mini video engines
 (11) would assign an address for each word of
 (12) data in the frame buffer?
 (13) A. You program them up for the
 (14) window. You program the start X to start Y
 (15) to Delta X and Delta Y and they did the
 (16) rest.
 (17) Q. Okay. And they would come up
 (18) with addresses based on those initial
 (19) starting positions?
 (20) A. Right.
 (21) Q. Was the 2070 actually sold?
 (22) A. Yes.
 (23) Q. In what years?
 (24) A. As far as I know it's still
 (25) being sold.

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(1) Q. When was the first sale of the
 (2) 2070?
 (3) A. I guess '93 or — I would have
 (4) to say the best recollection I have is maybe
 (5) some of them was sold in '92, I don't know.
 (6) Q. Certainly before 1994?
 (7) A. I'm trying to remember when I
 (8) saw my first demo from a customer's
 (9) product. I can't remember what Comdex that
 (10) was. I'm pretty sure it was '83 — '93
 (11) because I don't think I went to any Comdex
 (12) after '93.
 (13) Q. Now, I believe you said the 2085
 (14) was a backend processor, is that right?
 (15) A. Yes.
 (16) Q. Were there any particular market
 (17) segments that the 2085 was meant to address?
 (18) A. Yes.
 (19) Q. Which ones?
 (20) A. The actual mixing of video and
 (21) graphics.
 (22) Q. Were there any particular
 (23) feature sets provided in the 2085 that made
 (24) it suitable for this application?
 (25) A. Yes.

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(1) Q. What were they?
 (2) A. It had a graphics port, a video
 (3) port, and a buffer for storing the video and
 (4) the interpolation engine and a color space
 (5) converter because it was fed YUV data on the
 (6) video port.
 (7) Q. Did the 2085 support both live
 (8) and playback video?
 (9) A. You could actually say that you
 (10) could — through the graphics port you could
 (11) actually play live video. I mean, you could
 (12) play playback data as graphics, but it would
 (13) have to be in RGB format.
 (14) Q. So with respect to the video
 (15) port in the 2085 it expected only live
 (16) video?
 (17) A. Live.
 (18) Q. Now, the 2085 worked with the
 (19) 2070, correct?
 (20) A. Yes.
 (21) Q. Were they sold as a pair?
 (22) A. Yes.
 (23) Q. Do you recall when the 2085
 (24) first was placed on sale?
 (25) A. Which one.

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(1) Q. The 2085.
 (2) A. When was it first — it was
 (3) actually preceded with the 2080. We got a
 (4) contract with Compaq to make changes to it
 (5) and it became the 2085 when we started
 (6) adding the features to Compaq on it, and
 (7) those features were what we called at that
 (8) time VAFC support. In other words, we
 (9) expanded the video port to be VAFC
 (10) compatible as well as compatible with the
 (11) 2070.
 (12) Q. When was the contract with
 (13) Compaq?
 (14) A. '92, I think, I'm not sure.
 (15) Q. Chances are there might be a
 (16) contract somewhere that would help you know
 (17) exactly when that occurred?
 (18) A. Yeah. If we could pinpoint when
 (19) VAFC was — when the committee, that would
 (20) help a lot because we was fighting that
 (21) battle in committee with Compaq to try to
 (22) make that a standard.
 (23) Q. Okay.
 (24) A. So you could very easily
 (25) pinpoint that date based on what was going

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(1) on in the VESA committee.
 (2) Q. Well, let's depart briefly and
 (3) look at VESA for a moment. You are fairly
 (4) active or were fairly active in the VESA
 (5) committee meetings, correct?
 (6) A. In the area of video, yes.
 (7) Q. Do you recall when you first
 (8) became involved with VESA?
 (9) A. Yes. When we got this contract
 (10) with Compaq part of the contract said we had
 (11) to make this a standard, and I didn't
 (12) delegate that off to a minor subordinate. I
 (13) took the responsibility of making it happen
 (14) myself.
 (15) Q. So when you got the contract
 (16) from Compaq you began attending VESA
 (17) meetings?
 (18) A. Yes.
 (19) Q. Was there any particular
 (20) subcommittee that you focused on?
 (21) A. Yes, the VAFC.
 (22) Q. Tell us what went on at the VAFC
 (23) meetings?
 (24) A. It was really a battle between
 (25) Cirrus and Brooktree. We was trying to get

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(1) the 885 to be the foundation. They was
 (2) trying to get their — we was trying to get
 (3) our 2085 and they was trying to get their
 (4) 885. Very similar architectures. Only
 (5) difference was the clocking scheme, which
 (6) was enough to really make a difference on
 (7) the interface.
 (8) Q. Do you recall when this battle
 (9) took place? What year?
 (10) A. It was either '92 or '93, and I
 (11) can't remember which one. I think it was
 (12) '92.
 (13) Q. Who chaired the VAFC
 (14) subcommittee?
 (15) A. Michael — it starts with an E,
 (16) he's from Brooktree. I want to say Engles,
 (17) but I don't think that's right.
 (18) Q. Could it be Eskim?
 (19) A. That sounds right.
 (20) Q. So these VAFC committee meetings
 (21) consisted of people from the video and
 (22) graphics industry?
 (23) A. Yes.
 (24) Q. And they would collect up
 (25) usually in Silicone Valley every couple of

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(1) months? Was that about how frequently or
 (2) was it -
 (3) A. About every month.
 (4) Q. And would you actually
 (5) physically travel out there to attend the
 (6) meetings?
 (7) A. Yes.
 (8) Q. And you would get in a hotel
 (9) conference room or something like this and
 (10) talk about video standards?
 (11) A. We actually did at the VAFC -
 (12) at the VESA headquarters. We actually had
 (13) one meeting at Compaq.
 (14) Q. Was there usually an agenda
 (15) produced for the VESA meetings?
 (16) A. I guess you could - agenda,
 (17) action items, go do list.
 (18) Q. And there was a chair and he
 (19) would run through the action items for that
 (20) meeting?
 (21) A. Yes.
 (22) Q. People often made presentations
 (23) at the VAFC subcommittee meetings, correct?
 (24) A. Yes.
 (25) Q. Someone would get up and talk

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(1) everything I've got to go get the video. It
 (2) had to be there waiting.
 (3) Q. Were these FIFOs used for
 (4) interpolation?
 (5) A. They were actually part of
 (6) the - I mean they were - the data was
 (7) stored there before interpolation began.
 (8) Q. Did either the 885 or the 2085
 (9) have two video FIFOs that were used for
 (10) interpolation between adjacent lines?
 (11) A. I don't think either one of them
 (12) did vertical interpolation. Maybe. If they
 (13) had enough memory to store a whole line,
 (14) they could store a line and a half. I'm not
 (15) familiar with the 885.
 (16) Q. Okay.
 (17) A. I can't remember - I can't
 (18) remember if we did interpolation - Y
 (19) interpolation on the 885 or not the 2085.
 (20) Q. But obviously there would be a
 (21) document somewhere that would help you
 (22) recall whether or not that would be true?
 (23) A. Yes.
 (24) Q. How did the -- well, let me just
 (25) finish out for a moment the battle, as you

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(1) about a particular technical aspect of a
 (2) display controller, for example, correct?
 (3) A. Yes.
 (4) Q. Did you ever make any
 (5) presentations to the VAFC subcommittee?
 (6) A. Yes.
 (7) Q. Can you recall when?
 (8) A. It was too long ago. I can't
 (9) remember which meeting it was in or which
 (10) day it was in.
 (11) Q. Do you recall making particular
 (12) presentations?
 (13) A. Yes, about clocking schemes.
 (14) The battle was over clocking.
 (15) Q. Do you recall distributing a
 (16) paper or slide show or anything like that?
 (17) A. I don't recall.
 (18) Q. It's certainly possible that you
 (19) did?
 (20) A. It's very possible.
 (21) MR. HILL: Objection. Calls for
 (22) speculation.
 (23) Q. (By Mr. Cordell) Well, a moment
 (24) ago you said the 2085 and the 885 had
 (25) somewhat similar architectures. Can you

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(1) described it in the VAFC committee meeting.
 (2) Can you describe the clocking scheme dispute
 (3) that seemed to be ongoing?
 (4) A. Yeah. The biggest problem was
 (5) that the 2085 was able to handle multiple
 (6) video windows. The Brooktree 885 could only
 (7) handle one video window and the way the 2085
 (8) was able to handle more windows was because
 (9) it sent a clock with a code - the 2070
 (10) generated a clock and coordinated the code
 (11) and the clock together, whereas the 885
 (12) looked at it from the other side that says
 (13) my video - my graphics is ready, I will
 (14) send processor clock and he will give me
 (15) data. So one was a requesting clock and one
 (16) was a driving clock.
 (17) Q. By requesting clock you mean
 (18) that the 885 would send a request for data
 (19) and for the timing of that data to the
 (20) central processor?
 (21) A. Yes.
 (22) Q. What was its stake in this
 (23) battle?
 (24) MR. HILL: Objection.
 (25) Ambiguous.

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(1) describe the similarities between the two
 (2) parts?
 (3) A. Yeah. They both had two ports,
 (4) graphic port and video port. They both had
 (5) buffers, big FIFO buffers. They both had
 (6) color space converters. They both had
 (7) scaling engines.
 (8) Q. You would characterize both as
 (9) having backend pipeline processing?
 (10) A. Yes.
 (11) Q. You said both had big FIFOs.
 (12) Can you describe the FIFOs?
 (13) A. Yeah. You had to be able to
 (14) store up a line in advance, at least a line
 (15) in advance in order to synchronize the audio
 (16) and the video and especially if you were
 (17) zooming, and that's what the big FIFOs was
 (18) for, was to store the video, to prefetch it
 (19) and store it and wait for the flag to come
 (20) to start displaying.
 (21) Q. That was so that the video
 (22) didn't outpace or lag behind the audio
 (23) information, correct?
 (24) A. Mainly that's because the video
 (25) is like live and you can't say hold

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(1) THE WITNESS: The stake for
 (2) Cirrus was the Compaq contract.
 (3) Q. (By Mr. Cordell) So if Cirrus
 (4) was not successful in having the VAFC
 (5) committee adopt the 2085 clocking scheme as
 (6) the standard, then it risked losing the
 (7) Compaq contract?
 (8) A. Yes.
 (9) Q. What was its stake for
 (10) Brooktree, do you know?
 (11) THE WITNESS: Could I take a
 (12) break?
 (13) MR. CORDELL: Certainly.
 (14) (A recess was taken.)
 (15) THE WITNESS: We're on the video
 (16) record at 10:28.
 (17) (The reporter read back the
 (18) requested text.)
 (19) Q. (By Mr. Cordell) And I think
 (20) the following question was: Do you know
 (21) what Brooktree had at stake in the VAFC
 (22) battle?
 (23) MR. HILL: Objection. Calls for
 (24) speculation.
 (25) THE WITNESS: No.

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(1) Q. (By Mr. Cordell) How long were
 (2) you involved with VAFC subcommittee?
 (3) A. For the duration of this
 (4) battle, I think it was about four months.
 (5) I'm not sure.
 (6) Q. Did others at Cirrus attend the
 (7) VESA meetings?
 (8) A. Yes.
 (9) Q. Was there an established VESA
 (10) team at Cirrus?
 (11) A. I wouldn't say so.
 (12) Q. Do you know who within Cirrus
 (13) was active with the VESA?
 (14) A. Yes.
 (15) Q. Who?
 (16) A. Bo Erickson actually chaired the
 (17) video subcommittee or the video committee.
 (18) He was Cirrus Logic.
 (19) Q. Anybody else?
 (20) A. Nobody was there full time. I
 (21) think different people went at different
 (22) times depending on what was being done.
 (23) Q. Mr. Schaefer attended some of the
 (24) VESA meetings, correct?
 (25) A. He attended the first one.

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(1) Q. And by the first one you mean
 (2) the first you attended?
 (3) A. No, he went to the first one and
 (4) he came back and we had a meeting and I
 (5) decided then that I should attend the rest
 (6) of them.
 (7) Q. I'm just trying to define it a
 (8) little bit. By the first one do you mean
 (9) the first VAFC subcommittee meeting?
 (10) A. Yes.
 (11) Q. Do you remember anyone from ATI
 (12) attending the VAFC subcommittee meetings?
 (13) A. Ed Calloway.
 (14) Q. Do you know Mr. Calloway
 (15) personally?
 (16) A. Professionally.
 (17) Q. Have you seen him around in
 (18) display circles for a few years?
 (19) A. Last time I went to Winheck I
 (20) saw him and we said hi to each other.
 (21) Q. Before we jumped off on VAFC
 (22) line we were talking about the 2085, and I
 (23) believe you said that the 2080 came first.
 (24) Can you tell us what the differences are
 (25) between the 2080 and the 2085?

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(1) A. Basically just the ability to
 (2) adapt that interface to handle more than
 (3) just the 2070, you know, to accommodate
 (4) whatever came out of the VAFC committee.
 (5) Q. Well, let's start with the
 (6) 2080. Can you describe the features and
 (7) functionality of the 2080?
 (8) MR. HILL: Objection. Calls for
 (9) a narrative.
 (10) THE WITNESS: What I described
 (11) earlier. Well, really it's already been
 (12) described.
 (13) Q. (By Mr. Cordell) So then pretty
 (14) much the same as the 2085?
 (15) A. Yes.
 (16) Q. And you said that the
 (17) differences were that you adapted the
 (18) interface. Can you tell us the nature of
 (19) those adaptations?
 (20) A. We had to be able to kill the
 (21) four code. Remember I said the difference
 (22) between the two was that we drove data and
 (23) we drove code with the data telling the 2080
 (24) how to process that code. We had to come up
 (25) with scheme in a VAFC interface which you

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(1) only had one window. The code was not
 (2) required.
 (3) Q. So you lost the VAFC battle?
 (4) A. We - well, you can say we won
 (5) we say we lost, we got the contract.
 (6) Q. That would be the important
 (7) thing.
 (8) A. Yes.
 (9) Q. But in terms of maintaining the
 (10) scheme you had proposed to VAFC it sounds
 (11) like they didn't go your way?
 (12) A. No, we didn't win completely.
 (13) It was a compromise.
 (14) Q. Now, you just mentioned a VAFC
 (15) window. Can you describe the VAFC window
 (16) for us?
 (17) A. VAFC window? Just data coming
 (18) across that interface, how it's formatted.
 (19) Q. Are there particular attributes
 (20) that the data has to conform to?
 (21) A. It's framed. It's framed just
 (22) like it was - it has two sinks, a clock,
 (23) data, and a couple of other signals, but
 (24) what I mean by VAFC window is that the data
 (25) is rastered through that port. It's not

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(1) like any other interface you see on a
 (2) computer.
 (3) Q. And VESA set forth the
 (4) specification defining that VAFC interface,
 (5) correct?
 (6) A. That's right.
 (7) Q. Do you recall the date of the
 (8) VAFC specification?
 (9) A. I can't give you a date.
 (10) Q. Can you give us a year?
 (11) A. I think it was voted on at
 (12) Comdex, I don't know if it was '82 or '83.
 (13) I think it was '83.
 (14) Q. You mean '93?
 (15) A. '93, excuse me.
 (16) Q. And certainly prior to its being
 (17) voted on there were preliminary
 (18) specifications that were circulated among
 (19) the VAFC committee members, correct?
 (20) A. The way it works the committee
 (21) puts together a proposal and presents it to
 (22) the main body for a vote and only one
 (23) proposal is presented. It's either accepted
 (24) or rejected.
 (25) Q. Now, I take it the 2085 was the

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(1) only part that was actually produced,
 (2) correct?
 (3) A. Meaning?
 (4) Q. As opposed to the 2080?
 (5) A. The 2080 was built and produced.
 (6) Q. Oh, it was?
 (7) When was the 2080 sold?
 (8) A. It was sold in the same time the
 (9) 2070 was.
 (10) Q. Certainly by 1993?
 (11) A. Yes.
 (12) Q. Was the 2080 promoted for sale
 (13) with parts other than the 2070?
 (14) A. Not to my recollection.
 (15) Q. What about the 2085, was it sold
 (16) in parts other than the 2070?
 (17) A. It was actually sold by itself.
 (18) Q. Then some of your customers may
 (19) mate it with a different kind of video
 (20) controller?
 (21) A. Yeah, because it was VAFC
 (22) compatible. Anybody can build any kind of
 (23) VAFC device to take advantage of it.
 (24) Q. Now, let's focus on the 2085.
 (25) Take me through the - sort of day in the

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(1) life of a pixel in the 2085. Where does a
 (2) pixel of graphics data come from that is
 (3) input to the 2085?
 (4) A. You have what's called a
 (5) graphics port that's a -- it can come in as
 (6) either eight bit data or it can come in at
 (7) 16 bit graphics data or it can come in as 24
 (8) bits graphics data. The eight bit data you
 (9) go through the look-up table and get
 (10) converted to 24 bit data. The 16 bit data
 (11) would be shifted and formatted to fit the 24
 (12) bit data format. The 24 bit data would go
 (13) as 24 bits.
 (14) Q. Is 24 bit data something you
 (15) would call true color data?
 (16) A. Yes.
 (17) Q. So the 24 bit data is just used
 (18) to drive the RAM DAC?
 (19) A. Before it gets -- well, the RAM
 (20) DAC is the device. It drives the DAC.
 (21) Q. The DAC, sorry?
 (22) A. The RAM is actually the look-up
 (23) table. Before it gets between the RAM and
 (24) the DAC what made these devices unique was
 (25) that they had a look-up table or a

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(1) multiplexer that would merge two streams, so
 (2) it would come from the point I just
 (3) described to this MUX and then to the DAC.
 (4) Q. And when you say it can merge
 (5) two streams you mean that it could arbitrate
 (6) between graphics and video data streams?
 (7) A. Yes.
 (8) Q. What elements controlled the
 (9) multiplexer?
 (10) A. In this device or what can
 (11) control it?
 (12) Q. Well, what controlled it in the
 (13) 2085?
 (14) A. Well, there was color key
 (15) capability. There was a window capability,
 (16) and I can't remember -- I don't think we had
 (17) a chroma key capability.
 (18) Q. Are you aware of any system in
 (19) which the 2085 was implemented that did
 (20) create a chroma key capability?
 (21) A. It would have had to be in
 (22) the -- I mean, nobody could add that feature
 (23) to it. It had to be in the chip or else you
 (24) couldn't do it.
 (25) Q. No keying off of the video

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(1) segment?
 (2) A. I can't remember -- yeah. I
 (3) can't remember. I don't -- I can't recall.
 (4) We had the technology -- I mean it was just
 (5) a matter of cost.
 (6) Q. Was there a register or some
 (7) other mechanism whereby the mode of the
 (8) multiplexer was set to color key or window
 (9) key?
 (10) MR. HILL: Objection. Compound.
 (11) THE WITNESS: In other words, a
 (12) register -- an overlay control register?
 (13) Q. (By Mr. Cordell) Exactly.
 (14) A. Yes.
 (15) Q. I mean, how did the device know
 (16) whether it should operate in the color key
 (17) mode?
 (18) A. Yeah, there was register. It
 (19) was register controlled.
 (20) Q. Some control bits that were set
 (21) that told the multiplexer how to operate?
 (22) A. Yeah.
 (23) Q. Now, with respect to the color
 (24) key can you tell us what the color key is?
 (25) A. The color key is a mechanism

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(1) that looks at the graphics data in advance
 (2) before it gets to this MUX and decide if
 (3) that color is transparent or not. If it's
 (4) transparent it selects the video stream... If
 (5) it's not transparent, it selects the
 (6) graphics stream.
 (7) Q. By transparent you mean that
 (8) it's just a predetermined color, correct,
 (9) it's usually magenta or something strange
 (10) like that?
 (11) A. Whatever.
 (12) Q. You don't necessarily mean that
 (13) it's a clear color?
 (14) A. No, it's usually a very ugly
 (15) color.
 (16) Q. Usually you pick one nobody
 (17) would ever want to use?
 (18) A. That's right.
 (19) Q. And the idea is that whenever
 (20) you want to tell the system to display video
 (21) information what you do is you load that
 (22) ugly color into a graphic stream?
 (23) A. Right.
 (24) Q. Tell us about the window
 (25) capability of the 2085 with respect to the

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(1) multiplexer.
 (2) MR. HILL: Objection. Calls for
 (3) a narrative.
 (4) THE WITNESS: Once again, it's
 (5) an XY windowing scheme. You have a start
 (6) position and Delta count in both X and Y.
 (7) Q. (By Mr. Cordell) And is it fair
 (8) to say, then, that the multiplexer outputs
 (9) video data whenever the raster address is
 (10) within the XY range you just described?
 (11) A. Yes.
 (12) Q. That's how the windowing
 (13) capability works?
 (14) A. Yes.
 (15) Q. And whenever the raster is
 (16) outside of that address field, the window
 (17) address field, it outputs -- the multiplexer
 (18) outputs graphics data, correct?
 (19) A. Yes, sir.
 (20) Q. Now, would you describe -- well,
 (21) we have done the graphics side. Can you
 (22) take us through a day in the life of a video
 (23) pixel as it enters the 2085?
 (24) MR. HILL: Objection. Calls for
 (25) a narrative.

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(1) Q. (By Mr. Cordell) You can
 (2) answer.
 (3) A. Comes through the port and goes
 (4) into a FIFO, a big storage area, and it sits
 (5) there until the backend coordinates and
 (6) pulls it out, and when it's pulled out it
 (7) goes through a color converter and if
 (8) there's interpolation involved it goes to
 (9) the interpolation engine and those two can
 (10) be in either order. I can't remember what
 (11) order they were in in the 2085, and then it
 (12) goes to the MUX.
 (13) Q. Now, would you describe the FIFO
 (14) color space converter and interpolator as a
 (15) video pipeline?
 (16) A. Repeat those components.
 (17) Q. I believe you identified a
 (18) storage FIFO, a color space converter, and
 (19) an interpolator in the backend of the video
 (20) system, correct?
 (21) A. Right.
 (22) Q. Would you call that a video
 (23) pipeline?
 (24) A. Yes.
 (25) Q. Is data always moving through

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(1) the video pipeline of the 2085 when it is in
 (2) operation?
 (3) A. What do you mean by when it's in
 (4) operation, when you end the window or do you
 (5) consider it outside the windowing
 (6) operation?
 (7) Q. Well, that's kind of where I'm
 (8) going with that. Can you tell me when data
 (9) is moving through that video pipeline, under
 (10) what circumstances?
 (11) A. Under one or two conditions.
 (12) Well, only under one condition. When the
 (13) backend retrieves it. Remember I said it
 (14) was a synchronization mechanism.
 (15) Q. Uh-huh.
 (16) A. That's what the big FIFO is
 (17) for. The big FIFO is to put the data there
 (18) and when it comes time for the backend to
 (19) pull it out and coordinate it with the
 (20) video — with the graphics data, then it
 (21) moves. And the two things that control that
 (22) is if you are color keying, the color key
 (23) will trigger that. The other thing that
 (24) will trigger that will be the windowing
 (25) system.

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(1) Q. So is it fair to say, then, that
 (2) data moves through the video pipeline in the
 (3) 2085 only when the output multiplexer is
 (4) passing video data?
 (5) A. Yes.
 (6) Q. And the two conditions under
 (7) which that happens is when the color key is
 (8) showing the transparent color you
 (9) described? Is that one of them?
 (10) A. Right.
 (11) Q. And the other is when the raster
 (12) address falls within the video window
 (13) specified by the registers you identified?
 (14) A. Correct.
 (15) Q. And I guess there is a third
 (16) condition with respect to those two
 (17) conditions which is the mode of the
 (18) multiplexer has to be set either to color
 (19) key or window position key, correct?
 (20) A. You actually have combinations
 (21) there. I mean, the color key is only active
 (22) in the window.
 (23) Q. So you could have an operating
 (24) mode in the 2085 or — strike that.
 (25) You did have an operating mode

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(1) in the 2085 where both the color key and the
 (2) window positions had to be satisfied in
 (3) order to pass video data?
 (4) A. Yes.
 (5) Q. Did you have an operating mode
 (6) in the 2085 where the color key was
 (7) satisfied but not the window positions and
 (8) yet you passed video data?
 (9) A. I think that's an invalid
 (10) condition.
 (11) Q. But there is certainly some
 (12) overlay control register that would tell us
 (13) under what conditions that video would be
 (14) passed, correct?
 (15) A. Yes.
 (16) Q. Now, going back to the graphics
 (17) portion of the 2085 I think you identified
 (18) elements relating to color look-up tables
 (19) and bit shifting. Do you recall that? Is
 (20) that an accurate reflection of what is in
 (21) the graphics?
 (22) A. Formatting.
 (23) Q. Formatting. Would you
 (24) characterize these elements as a — strike
 (25) that.

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(1) Would you characterize these
 (2) elements as a graphics pipeline?
 (3) A. Yes.
 (4) Q. Did the 2085 include any
 (5) attribute controls in the VGA sense?
 (6) A. I don't think so.
 (7) Q. Did it include any of the VGA
 (8) features?
 (9) A. It had the basic VGA RAM DAC
 (10) addresses, which was for our addresses.
 (11) Q. And how were they used in the
 (12) 2085?
 (13) A. They were the same. They were
 (14) compatible with VGA or RAM DAC registers,
 (15) and we actually had what were called another
 (16) register, hidden register that you could use
 (17) those registers for something else in
 (18) another mode to extend the capability.
 (19) Q. Well, were they used in either
 (20) the video or graphics backend pipelines?
 (21) A. Well, those four registers or
 (22) that RAM DAC is considered to be in a
 (23) Windows — excuse me, a Wintel, W-i-n-t-e-l,
 (24) system. Those are considered to be part of
 (25) the graphics pipeline because that controls

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(1) the color look-up table, how you load data
 (2) into the look-up table and how you — what
 (3) else? Let's see. You read, you write —
 (4) there's four registers. I can't remember
 (5) what they are.
 (6) Q. But you specify essentially how
 (7) many colors would be available to the system
 (8) and things like that, the VGA specification?
 (9) A. Right.
 (10) Q. Now, are you aware of systems
 (11) that incorporated the 2085? Do you know
 (12) anything about them?
 (13) A. This was a few out there. What
 (14) do you want to know?
 (15) Q. I'm just interested in whether
 (16) or not you were aware of any system wherein
 (17) the 2085 was utilized in conjunction with a
 (18) single frame buffer.
 (19) A. It was impossible.
 (20) Q. It was impossible. Why?
 (21) A. It was impossible to get both
 (22) video and graphics in a single frame buffer.
 (23) Q. Why is that?
 (24) A. Because it had two ports; one
 (25) for video and one for graphics.

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(1) Q. Well, does that make it
 (2) impossible or does that mean you just need
 (3) to pass the video and graphics to the
 (4) respective ports?
 (5) A. Let me put it to you this way.
 (6) You could put a graphics controller, marry
 (7) it to the 2085 and it would act like any
 (8) other graphics PC device. In other words,
 (9) to get video you had to add another device
 (10) with its own frame buffer.
 (11) Q. Well, I'm just trying to
 (12) understand your testimony. Are you saying
 (13) that it's impossible because the 2085 simply
 (14) couldn't accept video and graphics data out
 (15) of the same frame buffer or are you saying
 (16) that you just don't know of a part that did
 (17) that?
 (18) A. You are getting down to some
 (19) nitty gritty here. I do not know of any
 (20) device that was built that had what I refer
 (21) to as a split frame buffer. That was the
 (22) only way a single device could have done, is
 (23) to have a split frame buffer, half the frame
 (24) buffer dedicated to one port and half
 (25) dedicated to the other port, never could the

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(1) data be mixed.
 (2) Q. Okay. Is there some hardware
 limitation in the 2085?
 (3) A. Yes.
 (4) Q. What is that?
 (5) A. The VRAM. It was designed to
 work with the VRAM.
 (6) Q. And the VRAM was incapable of –
 well, what is it about the VRAM that
 prevents the mixing video?
 (7) A. It is because in the VRAM you
 are dropping a row. If you drop a row
 you've got to take the whole row. I mean,
 you can't drop a row and then halfway
 through it drop another row of a different
 kind of data. All of the data you drop has
 got to be the same.
 (8) Q. Well, is there any limitation,
 then, on there being a number of rows of
 graphics, a number of rows of video followed
 by a number of rows of graphics within the
 same display?
 (9) A. Speculating, I guess, for some
 reason if they wanted to, they could
 possibly do that.

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(1) you've got to have a way of determining
 (2) where you are at. You understand what I'm
 (3) saying?
 (4) Q. Uh-huh.
 (5) A. You have to be able to pinpoint
 (6) a single pixel in the display.
 (7) Q. Are you familiar with the data
 (8) interfaces on the Brooktree 885 part?
 (9) A. Vaguely.
 (10) Q. Do you know of any similarities
 (11) or differences between the 885 data ports
 (12) and the 2085 data ports?
 (13) A. The only difference between them
 (14) was the clocking scheme. They both depended
 (15) on a VRAM interface.
 (16) Q. Are you familiar with an oak
 (17) part called the Spitfire?
 (18) A. I have only heard of it
 (19) recently.
 (20) Q. How recently?
 (21) A. Just in the last week or so.
 (22) Q. Is that something that you've
 (23) been examining as part of your work in this
 (24) case?
 (25) A. I have been told about it, yes.

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(1) Q. I don't want you to speculate.
 (2) I'm wondering whether there's a limitation
 (3) in the 2085?
 (4) A. That's not a practical thing to
 (5) do, but the limitation is – to raster data,
 (6) the limitation is to B RAM. Whatever you
 (7) can do with B RAM, you can do with this
 (8) chip. That's the bottom line. B RAM has –
 (9) the limitation is it takes time to drop a
 (10) row. You drop your row in the blanking
 (11) interval – in the refreshed period – I
 (12) mean, you know, when the retrace period –
 (13) are you familiar with the term?
 (14) Q. Yes.
 (15) A. When you are retracing back to
 (16) the next line, you drop a row. If you try
 (17) to drop a row out in the middle it's going
 (18) to take time and that – going to be pixels
 (19) missed. So pixel is lost. They would be
 (20) dropped. They would not make it to the
 (21) display.
 (22) Q. Well, was there any particular
 (23) requirement in the 2085 that it be used with
 (24) VRAM only?
 (25) A. Yes.

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(1) Q. Okay. And I take it you have
 (2) been told by counsel?
 (3) A. Yes.
 (4) MR. CORDELL: Mr. Hill, can you
 (5) tell us what your relationship is with
 (6) respect to the witness? Are you
 (7) representing him? Are you representing
 (8) Cirrus? Are you – what is your
 (9) relationship with this witness?
 (10) MR. HILL: We are representing
 (11) the witness in his personal capacity here
 (12) today as well as we represent Cirrus Logic.
 (13) MR. CORDELL: I take it you're
 (14) going to maintain a privilege over any
 (15) communications you've had with this
 (16) witness?
 (17) MR. HILL: Absolutely.
 (18) MR. CORDELL: Does it bother you
 (19) at all that he's a fact witness?
 (20) MR. HILL: No.
 (21) MR. CORDELL: And that he is no
 (22) longer employed by Cirrus?
 (23) MR. HILL: Right.
 (24) MR. CORDELL: So you are going
 (25) to maintain a privilege even in the face of

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(1) Q. What was that requirement?
 (2) A. The port interface.
 (3) Q. The port interface accepted only
 (4) a single row of data at a time?
 (5) A. Yeah, in raster format. And
 (6) then when the VAFC port was added that was a
 (7) single formatted of data. In other words,
 (8) if you go back and look at the VAFC spec,
 (9) you're rastering data in through that port.
 (10) Okay? One of those ports was either, A, a
 (11) VAFC interface or, two, a VRAM interface.
 (12) The other interface was just a standard RAM
 (13) DAC interface to the graphics chip.
 (14) Q. Okay. So it sounds like the
 (15) video port at least had two choices,
 (16) correct?
 (17) A. Right.
 (18) Q. Now, let's stay with the VAFC
 (19) interface for a moment. Did the single row
 (20) limitation you described a moment ago also
 (21) apply to the VAFC interface?
 (22) A. Indirectly, because remember it
 (23) rastered data based on the synchs.
 (24) Q. Okay.
 (25) A. If you are going to mix data

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(1) his somewhat tangential relationship to the
 (2) dispute?
 (3) MR. HILL: We are going to
 (4) maintain a privilege.
 (5) Q. (By Mr. Cordell). Well, let me
 (6) go through the exercise, if you don't mind.
 (7) Can you tell me what your lawyers told you
 (8) about – well, strike that.
 (9) Can you tell me what – well,
 (10) first of all, can you tell me who discussed
 (11) the oak part with you?
 (12) MR. HILL: Objection. Calls for
 (13) attorney-client privileged information and
 (14) work product.
 (15) Q. (By Mr. Cordell) All I'm asking
 (16) for is a name.
 (17) MR. HILL: And you can give the
 (18) name.
 (19) THE WITNESS: Russ Hill.
 (20) Q. (By Mr. Cordell) I suspected
 (21) that might be true. And can you tell me
 (22) what Mr. Hill said to you with respect to
 (23) the oak part?
 (24) MR. HILL: Objection. Calls for
 (25) attorney-client privileged information or

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(1) work product, and I instruct you not to
 (2) answer that question.
 (3) Q. (By Mr. Cordell) Mr. Nally, you
 (4) are not employed by Cirrus any more,
 (5) correct?
 (6) A. That's right.
 (7) Q. And you're certainly not part of
 (8) their management team; isn't that true?
 (9) A. That's true.
 (10) Q. Probably lots of reasons why you
 (11) might not want to be part of their
 (12) management team?
 (13) MR. CORDELL: Counsel, again,
 (14) this is a fact witness that's been gone from
 (15) the company for at least two years, and I
 (16) ask that you reconsider your instruction.
 (17) MR. HILL: Counsel, he has a
 (18) consulting agreement with us and he's
 (19) helping us in the case. And to the extent
 (20) that it's not related to the facts of the
 (21) invention or whatever, it is work product.
 (22) It's attorney work product, and we're not
 (23) going to allow him to talk about that today.
 (24) Q. (By Mr. Cordell) Mr. Nally,
 (25) based on your review of the oak 107 part

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(1) could you answer questions about its
 (2) features and functionality?
 (3) A. I have not reviewed it.
 (4) Q. You have not reviewed it?
 (5) A. I just know of its existence.
 (6) Q. So you only know what counsel
 (7) has told you about it?
 (8) A. Yes.
 (9) Q. You actually met with Brooktree
 (10) concerning its 885 part, didn't you?
 (11) A. Yes.
 (12) Q. Can you describe that turn of
 (13) events?
 (14) A. It was a long time ago. Really
 (15) Cirrus Logic did not want to do the 2085 and
 (16) was sent out there to approach Brooktree
 (17) to try to get them to do it.
 (18) Q. Do you know why Cirrus didn't
 (19) want to do the 2085?
 (20) A. It was a manpower crunch.
 (21) Q. Who did you meet with at
 (22) Brooktree?
 (23) A. Dale Rourke.
 (24) Q. Do you recall when?
 (25) A. All I could tell you was that I

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(1) was there at C Graph in California and I
 (2) drove from Anaheim down to Brooktree on that
 (3) trip. I can't remember what year or what
 (4) month.
 (5) Q. Okay. What did you talk about
 (6) with Mr. Rourke?
 (7) A. Basically I gave them a very
 (8) high-level description of the 2070 and by
 (9) that I just gave them the bullet list, what
 (10) it could do, that kind of stuff.
 (11) Q. Of the 2070?
 (12) A. 2070. Which we were designing
 (13) at the time.
 (14) Q. Did you discuss anything else
 (15) with them?
 (16) A. Not that I can recall.
 (17) Q. You don't recall talking to them
 (18) about the 2085?
 (19) A. They never mentioned that to me.
 (20) Q. This is your part, the 2085?
 (21) A. The 2085? Oh, the 2085 — no,
 (22) we actually — at that time they did not
 (23) know — at that time 2085 was not on the
 (24) books to be done. I mean, when I came back
 (25) from that trip is when we decided to do the

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(1) 2085.
 (2) Q. So you went to Brooktree and
 (3) described the 2070 and told them about your
 (4) plans to create a part that ultimately
 (5) became the 2085?
 (6) A. Right.
 (7) Q. Did they describe the 885 to
 (8) you?
 (9) A. No, they did not. At the time I
 (10) was not aware. Going into that meeting I
 (11) was not aware of the fact that they had
 (12) anything like that in design. Coming out of
 (13) the meeting I was kind of wondering what was
 (14) going on.
 (15) Q. What did they say to you that
 (16) gave you reason for pause?
 (17) A. Somebody said it sounded like
 (18) something we were working on.
 (19) Q. Do you remember who said it?
 (20) A. No.
 (21) Q. Do you remember the first
 (22) occasion on which you learned about the
 (23) Brooktree 885?
 (24) A. I can't recall when I knew for
 (25) sure anything was going on.

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(1) Q. Brooktree has a patent on the
 (2) 885. Are you aware of that?
 (3) A. Yes.
 (4) MR. CORDELL: I would ask the
 (5) reporter to mark as Nally 3 United States
 (6) Patent No. 5,406,306.
 (7) (Deposition Exhibit 3
 (8) was marked.)
 (9) Q. (By Mr. Cordell) Mr. Nally, can
 (10) you identify what we've marked as Exhibit 3?
 (11) A. It's a patent. I see a video
 (12) pipeline. I'm looking at the drawing, and
 (13) I'm assuming this is the patent we are
 (14) talking about, the Brooktree patent.
 (15) Q. Well, I was about to ask you
 (16) that.
 (17) A. And it's got the Brooktree
 (18) Corporation on it, and it looks to be, you
 (19) know, very much like a dual pipeline
 (20) system. It's been a while since I
 (21) reviewed — since I looked at this patent,
 (22) but I think this is it.
 (23) Q. Do you recall the first occasion
 (24) on which you became aware of this patent's
 (25) existence?

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(1) A. I think that this is one of the
 (2) patents we researched in this — this patent
 (3) that we have here.
 (4) Q. By this patent do you mean the
 (5) 525 patent?
 (6) A. Yes.
 (7) Q. Let me place before you what
 (8) we've previously marked in this case as
 (9) Respondent's Exhibit 2 and ask you to
 (10) identify it, if you can.
 (11) A. Yes, this is the patent that we
 (12) are in litigation over, right.
 (13) Q. This is your patent, the 525
 (14) patent?
 (15) A. Yes.
 (16) Q. And when you say that you first
 (17) became aware of the patent we've marked as
 (18) Nally 3, the Siann patent, if we can call it
 (19) that. I believe you said that you first
 (20) became aware of it during the prosecution of
 (21) the 525 patent, correct?
 (22) A. To the best of my knowledge, if
 (23) my memory serves me.
 (24) Q. Can you describe the
 (25) circumstances under which you became aware

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(1) of the Siann patent?
 (2) A. We went and did a -- I gave the
 (3) lawyer who was working in this case some
 (4) company names that I knew of people working
 (5) in this area.
 (6) Q. Do you recall who the lawyer
 (7) was?
 (8) A. Murphy.
 (9) Q. James Murphy?
 (10) A. James Murphy.
 (11) Q. Do you recall what names you
 (12) gave him?
 (13) A. Brooktree and Resterop is the
 (14) only two I can remember.
 (15) Q. Brooktree and Resterop?
 (16) A. Yes.
 (17) Q. Do you recall why those names --
 (18) A. Because there was information
 (19) out there in the marketplace that these two
 (20) guys were marketing products that I was
 (21) worried about. 885 was one of them.
 (22) MR. HILL: I just want to
 (23) caution the witness not to reveal your
 (24) communications with the patent attorney at
 (25) the time. It's work product when you worked

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(1) reference you knew about them because of
 (2) your VAFC meetings?
 (3) A. Yes.
 (4) Q. And because you saw things in
 (5) the press?
 (6) A. Right.
 (7) Q. Did you recall -- I mean, we've
 (8) talked about VAFC meetings and they were
 (9) there and they were fighting over the
 (10) standard just like you were, correct?
 (11) A. Right.
 (12) Q. And you knew the stakes that if
 (13) they won the standard they may take a take a
 (14) piece of your business?
 (15) A. Right.
 (16) Q. But do you recall anything in
 (17) the press that may have raised them on your
 (18) radar screen?
 (19) A. Yes, it was stuff in the press.
 (20) Q. Do you remember anything in
 (21) particular?
 (22) A. No, just typical hype.
 (23) Q. Companies wouldn't actually
 (24) advertise a part before they had it
 (25) available, would they?

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for Cirrus.
 THE WITNESS: Excuse me?
 MR. HILL: I would caution you
 (1) not to reveal your communications with the
 (2) patent attorney at the time, however, your
 (3) awareness of certain facts, of course is --
 THE WITNESS: Okay.
 MR. HILL: -- may be
 (1) discoverable, but the content of your
 (2) communications with the patent attorney at
 (3) the time, you shouldn't reveal he was --
 (4) this is work product for Cirrus.
 THE WITNESS: Okay. I follow
 (5) you.
 MR. CORDELL: Well, Counsel, I'm
 (6) not so sure it's work product.
 MR. HILL: Attorney-client
 (7) privilege.
 MR. CORDELL: Well, even that, I
 (8) mean this is prosecution, after all.
 MR. HILL: Right.
 MR. CORDELL: Are you taking the
 (9) position that any communication between the
 (10) inventor and his attorneys would be
 (11) privileged?

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(1) A. Do it all the time.
 (2) Q. That's what marketing is for,
 (3) isn't it?
 (4) A. Yeah.
 (5) Q. Tell me about Supermac, what
 (6) part or system were you concerned with with
 (7) respect to them?
 (8) A. I can't remember at this time.
 (9) Q. You just know that they were a
 (10) company on your radar screen?
 (11) A. Yeah.
 (12) Q. Now, did you give Mr. Murphy
 (13) anything in writing?
 (14) A. No.
 (15) Q. Did you talk to him on the
 (16) phone?
 (17) A. I can't remember how.
 (18) Q. You just know that you
 (19) communicated something to him that raised
 (20) these companies in -- at least that you were
 (21) concerned about?
 (22) A. Right.
 (23) Q. Now, did you perform any kind of
 (24) a search for these company's products?
 (25) MR. HILL: I instruct the

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(1) MR. HILL: Certainly it falls
 (2) within the privilege if it's legal advice.
 (3) MR. CORDELL: Let's find out if
 (4) we run into those areas and you can make a
 (5) proper instruction if you can find a basis
 (6) to do so.
 (7) Q. (By Mr. Cordell) What
 (8) information in the marketplace were you
 (9) worried about?
 (10) A. Well, obviously we was in all
 (11) this battle with Brooktree, okay. I knew
 (12) that they had some very similar
 (13) architecture. I had never seen any of their
 (14) literature at that point, so that's -- you
 (15) know, I knew about Brooktree's parts because
 (16) I had been interacting with them and stuff
 (17) like that. There was also press
 (18) information, seeing press information where
 (19) they were selling their stuff. Resterop,
 (20) they had been in the business a long time.
 (21) They were Supermac, I believe, is what they
 (22) were before then or Supermac bought them.
 (23) It's just that that was one of the routine
 (24) companies that you did a search on.
 (25) Q. So with respect to the Brooktree

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(1) witness if you were doing that under
 (2) counsel's guidance I don't want you to
 (3) reveal that.
 (4) THE WITNESS: Okay. How do I
 (5) answer that?
 (6) Q. (By Mr. Cordell) Well, I think
 (7) you can answer that yes or no. Did you,
 (8) Mr. Nally, do a search?
 (9) A. Did I do a search? No.
 (10) Q. Okay. Did you ask anybody else
 (11) to do a search?
 (12) A. I think I was asked who should
 (13) we search.
 (14) Q. Okay. So Mr. Murphy asked you
 (15) rather than the other way around?
 (16) A. Yeah.
 (17) Q. Do you know if Mr. Murphy did a
 (18) search?
 (19) A. Yes.
 (20) Q. And did he report the results of
 (21) that search to you?
 (22) A. That's the results right there.
 (23) Q. So he sent you one or more
 (24) patents to look at?
 (25) A. Yes.

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(1) Q. What did you do in response to
 (2) that?
 (3) A. I looked them over to make sure
 (4) that we weren't in violation.
 (5) Q. So you were more concerned about
 (6) violating somebody else's patent rights?
 (7) A. Yes.
 (8) Q. Did you also look at them to see
 (9) whether or not your patent included some of
 (10) the features that were set forth in those
 (11) other patents?
 (12) A. No.
 (13) Q. Did you review the Sian patent
 (14) we've marked as Nally 3 at that time?
 (15) A. Yes.
 (16) Q. Can you give us a time frame for
 (17) when this exchange took place with
 (18) Mr. Murphy?
 (19) A. No.
 (20) Q. We'll get to the file wrapper
 (21) and that may help you there.
 (22) A. Yeah.
 (23) Q. Turning to the third page, which
 (24) is entitled figure three, kind of turn it
 (25) sideways here in Nally 3. Can you tell us

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(1) says that you can't talk to anybody about
 (2) your testimony so I know during the break
 (3) it's natural to get up and walk around and
 (4) talk to people.
 (5) A. Yes.
 (6) Q. But -- and I'm -- just try to
 (7) keep that in mind, if you can.
 (8) A. Sure.
 (9) Q. I know you wouldn't do it, but
 (10) sometimes these things can come bubbling
 (11) up.
 (12) How is the video window logic
 (13) shown here in figure three distinct from the
 (14) overlay control that I believe you described
 (15) with respect to the 2085?
 (16) MR. HILL: Objection. Calls for
 (17) a legal conclusion as to what's inside the
 (18) patent, but you can answer the question.
 (19) THE WITNESS: I'm making the
 (20) assumption that they are using registers to
 (21) control the window, and when I talked to you
 (22) earlier I didn't specify how you are
 (23) controlling the window.
 (24) There is more than one way of
 (25) doing that with the XY windowing -- really

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(1) what elements, if any, were included in the
 (2) 2085 that you do not see here in figure
 (3) three?
 (4) A. In the 2085?
 (5) MR. HILL: Objection. Calls for
 (6) speculation.
 (7) THE WITNESS: Yeah, it would
 (8) be --
 (9) MR. HILL: Mr. Nally, if you
 (10) need time to review this patent you should
 (11) ask for it.
 (12) MR. CORDELL: We'll be happy to
 (13) let you take a break. In fact, I think the
 (14) reporter needs to change the tape, so why
 (15) don't we take a five-minute break?
 (16) VIDEOGRAPHER: We're off the
 (17) video record at 11:12.
 (18) (A recess was taken.)
 (19) Q. (By Mr. Cordell) Mr. Nally, I
 (20) believe there was a question pending. Do
 (21) you recall what it was?
 (22) A. Looking at figure three could I
 (23) say what is in the 2085 that is not in this
 (24) drawing.
 (25) Q. That's right.

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(1) MR. HILL: I'm going to object
 (2) that it calls for a legal conclusion as to
 (3) the contents of the patent, but you can go
 (4) ahead and answer.
 (5) THE WITNESS: Okay. Just
 (6) looking at it the only thing that strikes me
 (7) is the video window logic. There was no
 (8) need for video window logic in the 2085. We
 (9) did not have a hardware register set
 (10) controlling the windowing.
 (11) Remember I said there was a code
 (12) that was sent across the interface. All of
 (13) the windowing and zooming and scaling was
 (14) done according to that code and that was
 (15) done so that we could do four video
 (16) windows. And that's the big difference
 (17) here. There may be other differences, but
 (18) that's the one that jumps at me.
 (19) Q. (By Mr. Cordell) Mr. Nally, did
 (20) you discuss this patent during the break
 (21) with counsel?
 (22) A. No.
 (23) Q. I probably should have pointed
 (24) it out earlier in the deposition, but while
 (25) you are under oath the judge has a rule that

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(1) you've got XY windowing over in the 2070,
 (2) but you've got four of them. What we did in
 (3) 27 we took those four windows controlled and
 (4) we generated a code determining if you are
 (5) in a window, out of a window, zooming,
 (6) scaling, whatever, and sent it over.
 (7) So the window control here is an
 (8) XY windowing scheme that is fixed inside
 (9) this chip, okay, who says it can only do one
 (10) video window. Whereas with a code like
 (11) Cirrus Logic did, you can handle more than
 (12) video windowing and you can actually overlay
 (13) video windows on top of each other.
 (14) Q. (By Mr. Cordell) So I guess
 (15) what you're saying is that the 2085 had
 (16) additional flexibility that you don't see
 (17) here in figure three?
 (18) A. That's what I'm trying to say.
 (19) Q. Let me ask it a different way,
 (20) then. Do you see anything here in figure
 (21) three that was not also provided in the
 (22) 2085?
 (23) MR. HILL: Same objection, also
 (24) to the extent it's calling for expert
 (25) testimony, object on that basis also.

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(1) THE WITNESS: I don't see
 (2) anything.
 (3) Q. (By Mr. Cordell) I note that
 (4) there's a display memory there at the
 (5) left-hand portion of the diagram. The 2085
 (6) did not include a display memory itself,
 (7) correct?
 (8) A. Well, this is misleading. Are
 (9) you saying that this thing has a display
 (10) memory inside the chip?
 (11) Q. No, I guess what I'm -- I think
 (12) you and I are on the same page on this. The
 (13) display memory is not part of this chip,
 (14) correct?
 (15) A. No.
 (16) Q. They just show the connections
 (17) to the display memory, correct?
 (18) MR. HILL: What chip are you
 (19) referring to?
 (20) MR. CORDELL: That would be the
 (21) figure three chip.
 (22) Q. (By Mr. Cordell) And by the
 (23) same token the 2085 isn't sold with a
 (24) display memory, correct?
 (25) A. Correct.

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(1) Q. And that's up to the system
 (2) integrator to add the display memory to the
 (3) chip, correct?
 (4) A. True.
 (5) Q. Did you ever provide any
 (6) analysis to anyone of the Siann patent, the
 (7) figure three patent - I'm sorry, Exhibit 3
 (8) patent?
 (9) MR. HILL: Well, I'll object if
 (10) this is going to call for attorney-client
 (11) privileged information.
 (12) MR. CORDELL: It's just a yes or
 (13) no.
 (14) MR. HILL: You can answer yes or
 (15) no.
 (16) THE WITNESS: I never really
 (17) provided any information, but I did have a
 (18) brief conversation with a Cirrus lawyer.
 (19) Q. (By Mr. Cordell) With a Cirrus
 (20) lawyer? Do you recall who that was?
 (21) A. No. The question was: What do
 (22) you think, are we violating our patent. No.
 (23) Q. I see. So again, you were
 (24) looking at it from the prospective of an
 (25) infringement?

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(1) A. No.
 (2) Q. So you came in and essentially
 (3) added the video features to the 5430 to
 (4) create the 5440?
 (5) A. Yes.
 (6) Q. Do you know who had the original
 (7) thought to create the 5440?
 (8) A. I believe I did, to the best of
 (9) my - I don't - I was in Dallas. I don't
 (10) know what people in Fremont were thinking.
 (11) I can't say if somebody preceded me in
 (12) thoughts here or not.
 (13) Q. Well, what lead you to the idea
 (14) of creating the 5440?
 (15) A. I needed something to do.
 (16) Q. The que was empty?
 (17) A. Yes.
 (18) Q. Well, was there a particular
 (19) market that you intended to address?
 (20) A. Yeah, I saw a need and an
 (21) opportunity here, and I did write a proposal
 (22) or - and I'm not sure how - how it grew
 (23) up. It was a change between me and
 (24) Fremont. Maybe it evolved from a number of
 (25) people. I'm not sure.

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(1) A. Yes.
 (2) Q. Who else worked on the 2085?
 (3) A. Shared Hirsharma.
 (4) Q. I'm sorry, Mr. Nally, the
 (5) reporter is going to start beating you and I
 (6) up if she can't hear us.
 (7) A. Okay.
 (8) Q. She looks like she can - she
 (9) means it, too.
 (10) A. Shared Hirsharma. Reinhart - I
 (11) can't remember his first name. Bruce
 (12) Doyle.
 (13) Q. Do you know if any of these
 (14) individuals are still employed by Cirrus?
 (15) A. No.
 (16) Q. No, you don't know or no, they
 (17) are not employed?
 (18) A. No, they are not.
 (19) Q. Is anyone from your old Pixel
 (20) group left at Cirrus?
 (21) A. Not of this group. Not of the
 (22) group in this time frame.
 (23) Q. Well, we'll try to cover the
 (24) other guys as we move forward.
 (25) What did you work on after the

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(1) Q. What was the market that you
 (2) intended to address?
 (3) A. There was a market emerging at
 (4) the time called playback market and I wanted
 (5) to take it further. I wanted to take it to
 (6) a video - live video market as well because
 (7) they had so many common elements that if you
 (8) did one it didn't make sense to me to do one
 (9) without the other.
 (10) Q. The idea there is that because
 (11) they had common elements you could
 (12) accomplish dual functionality with the same
 (13) parts?
 (14) A. Right.
 (15) Q. Save a little money?
 (16) A. Save some money.
 (17) Q. Now, a moment ago you said you
 (18) wrote a proposal. Do you recall when that
 (19) proposal was written?
 (20) A. No.
 (21) Q. We have seen reference to a
 (22) September 1993 document. Are you aware of
 (23) any September of 1993 document?
 (24) A. When?
 (25) Q. September of '93?

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(1) 2085? I believe you said it was the 5440?
 (2) A. Yes.
 (3) Q. Now, there were some video
 (4) products that were - at least had some
 (5) common elements with the - I'm sorry,
 (6) strike that.
 (7) There were some graphics
 (8) products that preceded the 5440 that had
 (9) some common elements with the 5440; isn't
 (10) that right? 5300 series graphics
 (11) controllers?
 (12) A. I remember programs by names but
 (13) not by numbers. There was an effort in a
 (14) portable group to do something similar to
 (15) this.
 (16) Q. Okay. The portable group is
 (17) known as the Laguna line?
 (18) A. No. That was the Viking Nordic
 (19) line. Laguna came along after this.
 (20) Q. And the 5440 was part of the
 (21) Alpine family?
 (22) A. Yes. Well, 5430 was the
 (23) Alpine. 5440 was derived from the 5430.
 (24) Q. Okay. Did you work on the 5430
 (25) at all?

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(1) A. That might have been a second
 (2) proposal. I think I presented a - the
 (3) first proposal I got negative feedback, it
 (4) was going to be too expensive, so I don't
 (5) know which one that is. I came back with a
 (6) second proposal. I can't remember which
 (7) one - which one do you have?
 (8) Q. Well, the problem is I don't
 (9) think I have either the first or the second,
 (10) so I was hoping you could tell me a little
 (11) bit about it.
 (12) A. The first proposal I wanted to
 (13) do chroma keying. I felt like we needed to
 (14) do two windows because I was really trying
 (15) to capture some of the conferencing,
 (16) teleconferencing market. Then I dropped
 (17) those two features in my second proposal.
 (18) Q. Can you tell us about when the
 (19) first proposal came in?
 (20) A. I really don't know.
 (21) Q. Who did you give it to?
 (22) A. A number of people. I think I
 (23) gave Brent Winchess a copy. He was the only
 (24) one - I gave it to some marketing people.
 (25) Bob Barnes, I think I gave him a copy.

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(1) That's the only ones I can remember.
 (2) Q. Was it 10 pages? 20 pages?
 (3) A. It was more like about - I
 (4) think it was about less than 10, maybe less
 (5) than 10. I'm digging deep for memories
 (6) here.
 (7) Q. Let me see what I have that
 (8) might help you.
 (9) MR. CORDELL: Let me have marked
 (10) as Nally 4 a multipage document bearing
 (11) Bates Number CLO0611 through 14.
 (12) (Deposition Exhibit 4
 (13) was marked.)
 (14) Q. (By Mr. Cordell) Mr. Nally, can
 (15) you identify what we have marked as Nally 4?
 (16) A. It looks like the second
 (17) proposal.
 (18) Q. So I take it we can safely
 (19) assume that the first proposal was prior to
 (20) November 12, 1993?
 (21) A. Yes.
 (22) Q. And is this a document you
 (23) produced as part of your job at Cirrus?
 (24) A. Yes.
 (25) Q. And something you maintained in

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(1) your files thereafter as part of your
 (2) business records?
 (3) A. Not necessarily.
 (4) Q. Okay. Obviously somebody had it
 (5) in their files.
 (6) A. I keep it - when I left, yeah.
 (7) I left my computer with all of the stuff on
 (8) it. What they did with it, I don't know.
 (9) Q. Okay. But I take it this was
 (10) not a personal document?
 (11) A. No.
 (12) Q. Was the first proposal similar
 (13) to this except that it included the dual
 (14) windowing features you just described?
 (15) A. Yes.
 (16) Q. So this was derived from the
 (17) first proposal?
 (18) A. Yes.
 (19) MR. CORDELL: Counsel, we would
 (20) obviously be very interested in the first
 (21) proposal.
 (22) MR. HILL: So would we.
 (23) MR. CORDELL: Have you made an
 (24) effort to locate it?
 (25) MR. HILL: Absolutely.

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(1) Q. (By Mr. Cordell) Mr. Nally, can
 (2) you describe the computer that you had when
 (3) you worked at Cirrus?
 (4) A. 283 Compaq.
 (5) Q. Some kind of barter transaction
 (6) there?
 (7) A. What?
 (8) Q. Do they give you computers for
 (9) graphics boards?
 (10) A. What do you mean?
 (11) Q. I'm being facetious, I'm sorry.
 (12) So it was a Compaq 283 and you
 (13) left it in Plano when you left the employ of
 (14) Cirrus?
 (15) A. Yes.
 (16) MR. CORDELL: Counsel, has
 (17) Mr. Nally's computer been located?
 (18) MR. HILL: Not to my knowledge.
 (19) MR. CORDELL: Has an effort been
 (20) undertaken to locate it?
 (21) MR. HILL: Yes.
 (22) Q. (By Mr. Cordell) Mr. Nally, may
 (23) we safely assume that your first proposal
 (24) was circulated to the list that we see on
 (25) the cover here of Nally 4?

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(1) A. Pretty much the same list.
 (2) MR. CORDELL: Counsel, do you
 (3) know if each of these individuals have -
 (4) files have been examined to determine
 (5) whether or not the first proposal exists?
 (6) MR. HILL: I don't know.
 (7) MR. CORDELL: We would ask that
 (8) that be done.
 (9) MR. HILL: We'll take that under
 (10) advisement.
 (11) Q. (By Mr. Cordell) Did you get
 (12) any feedback from the memo we marked as
 (13) Nally 4?
 (14) A. Yes, it was pretty much agreed
 (15) to go with it.
 (16) Q. Can you tell what differences,
 (17) if any, existed between the proposal here in
 (18) Nally 4 and what you had done previously in
 (19) the 2085?
 (20) A. The big difference here is that
 (21) we was working with DRAM instead of VRAM.
 (22) Brand new game.
 (23) Q. Why is that?
 (24) A. Because we didn't have the
 (25) luxury of a backend row drop transparent.

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(1) We had to now worry about collisions. We
 (2) had to worry about losing data because you
 (3) ran out of band width. Remember it was a
 (4) single port, the VRAM is dual ported, we got
 (5) a serial port, an I/O port. The serial port
 (6) is all your rasterization that's done out of
 (7) the serial port in VRAM. With that missing,
 (8) all of that load is transferred to the I/O
 (9) port, so that means everything has now got
 (10) to go through that one port and it's a lot
 (11) more hairy.
 (12) Q. So now you have to handle both
 (13) instructions and data flow through that
 (14) single I/O port, correct?
 (15) A. That's memory I/O, there's no
 (16) instructions just data.
 (17) Q. Good point. You have to handle
 (18) both addressing and data through that single
 (19) I/O port?
 (20) A. Right. You really have to
 (21) handle both I/O data in and out of the frame
 (22) buffer and raster data going to the display
 (23) out of that same memory interface.
 (24) Q. Okay. And it is your view that
 (25) the use of DRAM complicated the circuit that

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(1) had previously existed with respect to the
 (2) 2085?
 (3) A. Yes.
 (4) Q. And this required you to use a
 (5) memory sequencer?
 (6) A. No, the memory sequencer was
 (7) already there. We just modified it.
 (8) Q. You had to make the memory
 (9) sequencer more sophisticated?
 (10) A. Yes.
 (11) Q. Can you tell us what changes had
 (12) to be made to the memory sequencer of the
 (13) 2085 in order to create the Nally 4 system?
 (14) A. Yes, because now you had to have
 (15) really two rastering operations instead of
 (16) one. Remember before all you rastered was
 (17) graphics data. You got another pipeline.
 (18) Now you just double the raster
 (19) requirements. Now you've got to raster data
 (20) here and make a decision. You raster your
 (21) graphics pipe as normal then you have to
 (22) make a decision as when to raster the video
 (23) data.
 (24) Q. Okay. I'm going to have to take
 (25) that apart a little bit. You said you

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- (1) raster the graphics data as normal. Can you describe that for us?
 (2) A. Normal graphics display. You get your vertical syncs. You get your horizontal syncs. It tells you when to start a new line and you get your FIFO, you know, and you keep your FIFO full and then steady stream of rastering comes out of the back in, that sequencer loads to the front of the FIFO.
 (3) Q. So during display operations the graphics pipeline is always outputting graphics data, correct?
 (4) A. Correct.
 (5) Q. And just so I'm clear we are speaking with respect to Nally 4, correct?
 (6) A. Yes.
 (7) Q. Was that different in the 2085?
 (8) A. There was no such device in the 2085.
 (9) Q. There was no such device to do what?
 (10) A. To raster data out of the memory. Remember 2085 was a row drop, and what happened was that the vertical syncs,

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- (1) Q. And so the distinction here is really on how the data gets from the memory to the pipeline rather than what happens downstream?
 (2) A. Right.
 (3) Q. The proposal of Exhibit 4 ultimately resulted in the 5440, correct?
 (4) A. Yes.
 (5) Q. Can you identify any differences between the proposal here at Nally 4 and what ultimately was marketed as the 5440?
 (6) MR. HILL: I'll make an objection that the documents speak for themselves here.
 (7) Q. (By Mr. Cordell) You can answer.
 (8) A. It's the same.
 (9) Q. It's the same? Okay. Now, turning to the second page of Nally 4 there's a section entitled playback and overlay controls. Do you see that?
 (10) A. Yes.
 (11) Q. And the first mode, if we can call it that, is entitled playback. Can you describe the playback mode for us?

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- (1) you get a new vertical sync dropping your row you just clock it until the data is gone. You get a new horizontal sync, you go and you drop the first row. So VRAM you just trigger a row drop and then you just serially clock the data out.
 (2) Q. So it's your testimony that the 2085 didn't raster data out of the memory?
 (3) A. No –
 (4) Q. It row dropped –
 (5) A. But it's still called rastering.
 (6) Q. They still call that rastering?
 (7) A. Because rastering is what you're doing on the display.
 (8) Q. Right. So I'm just trying to be clear.
 (9) A. Right.
 (10) Q. How would you distinguish, then, the memory operations of Nally 4 from the memory operations of the 2085?
 (11) A. Okay. In the 2085 when you start a new line, while you was waiting – when you was in your vertical blanking interval you would drop a whole row of pixels and then you have a serial port on

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- (1) A. That is when the processor is putting information into the frame buffer through the interface to the host port, the PCI bus in the sense is – the host processor is putting data –
 (2) Q. So this refers to the case wherein the controller is obtaining data from the host computer?
 (3) A. Yes.
 (4) Q. And the host processor is perhaps monkeying around with the data, it's getting it someplace, probably from permanent storage and is passing it to the card whenever it feels like it?
 (5) A. Yes, have to decompress it.
 (6) Q. Now, it says the data will be stored in, quote, on-screen memory. Do you see that?
 (7) A. Right. Yes.
 (8) Q. What is on-screen memory with respect to the 5440?
 (9) A. In relation to the graphics data it is – you create a window and you actually put the video in that location.
 (10) Q. Are you familiar with the

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- (1) the VRAM, and you give it a clock, a serial clock, it gives you the data, you give it a clock, it gives you data, you give it a clock, give it data. There is no bandwidth consumption of the memory because you dropped a whole row in a single clock cycle. In the DRAM to get that same data out, you've got to suspend any I/O operation and do a massive hit through that I/O port and say give me data address A, give me address B, address – you have to issue an address for each byte or each block of data you get, you've got to issue all these addresses, you're consuming the address bus, you're consuming the data bus, the I/O data bus, and the whole time nothing else can go on inside that memory. No other operation can take place. So your rastering operation or your display operation is consuming a huge amount of your memory bandwidth.
 (2) Q. But I think my original question was whether or not the graphics pipeline in the 2085 was always outputting graphics data during active display operations?
 (3) A. Yes.

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- (1) Microsoft DCI specification?
 (2) A. Yes.
 (3) Q. Are you familiar with the term they use primary display surface?
 (4) A. Yes.
 (5) Q. Is on-screen memory here the primary display surface?
 (6) A. Primary display surface can be on screen or off screen. Primary when you – in DCI you generate a primary display surface, you are allocating a window. That is not necessarily – the graphics window is not a primary surface. That is the GUI interface. The primary surface is a window that you allocate for the DCI interface to use, and that is usually considered to be what is displayed on the screen. It doesn't necessarily have to be in the – it could be allocated as a frontend process or allocated as a backend process. Do you understand what I'm saying?
 (7) Q. Let me try it a different way. How do you define on-screen memory for the 5440?
 (8) A. On-screen memory is the memory

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(1) that is being rastered out to the display.
 Q. So is it your testimony, then,
 that whatever is being displayed in any
 instant must be resident in on-screen
 memory?
 A. Yes.
 Q. In the 5440 frame buffer isn't
 it true that you have a register that
 defines the upper left-hand corner pixel of
 the active display?
 A. I believe there - yes.
 Q. And then there's an extent
 register that defines how far the active
 display goes within the frame buffer,
 correct?
 A. Best of my knowledge.
 Q. Isn't that the on-screen memory
 for the 5440?
 A. On-screen memory is a part of
 that.
 Q. So you would include as well
 any, for example, video information that is
 being rastered out of a different portion of
 memory on to the display?
 MR. HILL: Maybe it would be

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(1) helpful if he had a chance to look at the
 5440 spec at the same time.
 Q. (By Mr. Cordell) I can restrict
 my questions to Nally 4.
 A. I don't understand the question.
 Q. I'm trying to get your
 definition of on-screen memory down.
 A. Okay. Now, the pointer and the
 extent, that defines the total frame buffer
 in CPU space. The CPU has to have an
 address range in order to talk to this
 memory. That memory - some of that memory
 is on screen, some of that memory is off
 screen.
 Q. I see. Well, is there a pointer
 and extent that tells the CPU what the
 active display size of this particular
 monitor is?
 A. Yeah. To what - in the drivers
 and stuff like that, way down in the bowels
 of Windows -
 Q. Uh-huh.
 A. - yeah, there would have to be
 some way of identifying the first pixel and
 how many pixels you are going to raster.

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Q. I'm not trying to do anything
 except understand what on-screen memory
 means.
 A. Oh, okay.
 Q. So if there's - we can - and
 I'll take whatever definition you agree
 with, but I've got to have one.
 A. Okay. Well, if -
 MR. HILL: Let me interject. If
 we are talking about the specific device
 that you were designing here and what
 on-screen meant for this device.
 THE WITNESS: That's what I'm
 confused about. You keep - they register
 this and they register that. I can't at
 this point tell you, yes, this register does
 that and that register does this. I just
 know there's a mechanism for doing it and I
 can't tell you exactly which register and
 how it's done.
 Q. (By Mr. Cordell) Okay. I don't
 really care about the mechanism. What I'm
 looking for is I've got a piece of data here
 in the frame buffer shown on the first page
 of Nally 4. How do I know whether it's an

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(1) on-screen or off-screen memory?
 A. Can I speak generically?
 Q. Absolutely.
 A. I'm not necessarily - I'm not
 saying this is the way this product works.
 Q. Sure.
 A. Okay. Because there's lots of
 different ways you can do it.
 MR. HILL: It's generic.
 Mr. Nally, and I'll have to object to those
 calling for a legal conclusion as far as the
 patent goes, but talking about specifics of
 these products, that's fine.
 THE WITNESS: Okay. Talking
 about specifics of this product, I do not
 know exactly - I can't remember the exact
 mechanism, what register did this that and
 the other, but the software, the CPU has to
 know where that memory is. The driver takes
 care of that. The only thing the hardware
 has to know is where to raster from. So you
 have to coordinate, you know, in a Windows
 environment, in the environment this thing
 was designed for. You have to - the
 software has to coordinate that backend

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(1) control with what the front - what the
 processor sees as on-screen memory. So
 there is - really you can't say that there
 is absolutely a register somewhere that
 tells this thing this is the start of your
 window and you just throw data through this
 port and it will go there. The CPU has -
 that's what the primary surface is. The
 primary surface is when the CPU allocates
 memory and he knows by the allocation of
 that memory where that window is. There's
 no registers that he goes and says give me
 these registers, tell me where this window
 is. There is a start position and an X and
 a Y dimension and a pitch - what you call a
 pitch that tells you how many -
 Q. How long the line is?
 A. Okay. How long the line is.
 And that's all managed in the software on
 the frontend side. Only on the backend do
 you have to have physical hardware telling
 you where the address starts.
 Q. Okay. Again, and I don't mean
 to belabor it, but what the sentence says is
 the data will be stored in on-screen

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memory.
 A. Right.
 Q. And I guess what I'm looking for
 is some definition of what that is so that
 we can tell whether or not the data is
 stored in on-screen memory.
 A. Talking about using the
 rastering registers. The registers that
 tells the rastering engine where to pick up
 the first pixel, how many pixels to pick up,
 and how many lines to pick up to CRT
 controller.
 Q. Okay.
 A. The CRT controller frames with
 this B synch and A sync and B sync the
 on-screen memory.
 Q. Okay. Now, given that
 definition does the system of Nally 4 place
 video information into that on-screen memory
 rectangle?
 A. Yes.
 Q. And it does so in PackJR format?
 A. Yes.
 Q. Does the system of Nally 4 also
 place video data into the off-screen portion

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(1) of the frame buffer?
 (2) A. It can do either one of them.
 (3) Q. In the same paragraph that we
 (4) were talking about a moment ago on the
 (5) second paragraph the Nally 4 the sentence
 (6) reads: The overlay selector will be
 (7) directing the data through the graphics
 (8) pipeline whenever the CRTC is rastering
 (9) outside the video display window and will be
 (10) directing the data through the video
 (11) pipeline when the CRTC is rastering inside
 (12) the VDW. Do you see that?
 (13) A. Yes.
 (14) Q. Now, does that mean that the
 (15) progress of the data through the graphics
 (16) pipeline stops when the CRTC is rastering
 (17) inside the video display window?
 (18) A. Which one stops?
 (19) Q. The graphics pipeline?
 (20) A. If you are not using the color
 (21) key, you want to stop it to save band width.
 (22) Q. So physically the memory fetches
 (23) out of the DRAM cease whenever --
 (24) A. No, you're still fetching --
 (25) you're now instead of fetching graphics data

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(1) Q. (By Mr. Cordell) It's a tough
 (2) one. I just want to make sure that --
 (3) A. I'm not sure what you asked me.
 (4) Q. Well, where in the system does
 (5) the digital video overlay sit? Let's try it
 (6) there.
 (7) A. The first question is: What do
 (8) you mean by digital video overlay. I'm
 (9) making sure I understand that we're talking
 (10) about the same thing here.
 (11) Q. That's what I'm afraid of.
 (12) That's what the document says, so I'm kind
 (13) of constrained.
 (14) A. Playback - remember playback is --
 (15) host processor feeding data through the host
 (16) port. Digital video overlay is when you've
 (17) got live video coming in through the video
 (18) port. This is real time data.
 (19) Q. Okay.
 (20) A. Okay. Now what is the
 (21) question?
 (22) Q. Well, let's try the overlay
 (23) selector.
 (24) A. Okay.
 (25) Q. Is that a distinct element

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(1) you're fetching video data.
 (2) Q. But you are not also fetching
 (3) graphics data to keep the graphics pipeline
 (4) full?
 (5) A. It's designed so that you could
 (6) do it either way. Like I said, there is no
 (7) reason to fetch graphics data if you are not
 (8) color keying because if there is no
 (9) transparency you know that all of the pixels
 (10) in that rectangle is video data. So why
 (11) waste memory band width fetching data that
 (12) you're never going to display. So what you
 (13) do is you stop fetching the graphics data
 (14) and then when you know you're getting close
 (15) to the windows end, you start fetching
 (16) the -- you reprimed your graphics line again,
 (17) okay. But now if you're doing color keying
 (18) you've got to keep fetching that graphics
 (19) data all the time, and we was able to do
 (20) that.
 (21) Q. So in the window control mode,
 (22) if we can call it that, the system in
 (23) Nally 4 would stop fetching graphics data to
 (24) save some band width when inside a video
 (25) window?

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(1) within the system of Nally 4?
 (2) A. Yes.
 (3) Q. Where is it located?
 (4) A. Going back to the drawing.
 (5) Okay. That's located in the video display
 (6) window.
 (7) Q. So that would be in the VDW
 (8) element on page one of Nally 4?
 (9) A. Yes.
 (10) Q. So the overlay selector is
 (11) utilized to develop a control signal that is
 (12) then fed to the overlay controls to toggle
 (13) between the graphics and video pipelines?
 (14) A. Right, and that arrow you see
 (15) coming out of the bottom going to the
 (16) overlay controller. I need new glasses.
 (17) Q. The end of that paragraph then
 (18) says: The overlay color key will be the
 (19) only means of controlling the overlay. What
 (20) does that mean?
 (21) A. What was I thinking? Let me
 (22) think. Okay. By that I mean it will be the
 (23) only way of controlling the overlay inside
 (24) the window.
 (25) Q. I see. Because the video is

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(1) A. If the color key is turned off.
 (2) Q. Is it also true that the system
 (3) of Nally 4 would retrieve video data only
 (4) when the CRTC is rastering inside the video
 (5) display window?
 (6) A. Yes.
 (7) Q. There is another element here
 (8) entitled digital video overlay. Can you
 (9) tell us what the function of the digital
 (10) video overlay is?
 (11) A. That's what we was talking about
 (12) where it's real live data coming in and
 (13) you're storing real live data off screen and
 (14) then to display it you have to make that
 (15) contact switch as you're rastering.
 (16) Q. Well, now is the digital -- I'm
 (17) sorry. Is the digital video overlay the
 (18) element that directs the memory controller
 (19) to begin to raster out video data or is the
 (20) video - digital video overlay the element
 (21) that elects to display data out of the video
 (22) pipeline instead of the graphics pipeline?
 (23) MR. HILL: Object to the form.
 (24) THE WITNESS: Repeat that
 (25) question.

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(1) turned on inside the window?
 (2) A. Yes.
 (3) Q. And if you want additional
 (4) control you have to resort to the color key?
 (5) A. That's right.
 (6) Q. Now, is it possible to bring up
 (7) a bit of graphics in the middle of the video
 (8) window in the system of Nally 4?
 (9) A. Yes, but remember if you've got
 (10) the overlay - wait a minute. Let's go
 (11) back. Are you talking about digital video
 (12) overlay or are you talking about --
 (13) Q. Well, I'm really getting at
 (14) overlay color key.
 (15) A. Yeah. Okay. If the color key
 (16) is turned on, then you have to continuously
 (17) fetch graphics data.
 (18) Q. I see.
 (19) A. And remember that was an option
 (20) to save band width. The programmer knows
 (21) what he wants to do. If he's wanting to do
 (22) a transparency then he knows he's got to
 (23) sacrifice band width to do it.
 (24) Q. And that's a mode that you tell
 (25) the programmers about and encourage them to

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(1) use if they want to?
 (2) A. Right.
 (3) Q. How big a frame buffer did the
 (4) system of Nally 4 require?
 (5) A. We targeted 1024 by 768, which
 (6) was one meg. I think that we could actually
 (7) get by with a half a meg, I'm not sure. It
 (8) all depends on how many chips it takes to
 (9) fill up a 32 bit wide frame buffer. I think
 (10) we designed this thing so that we could
 (11) advertise half meg in the 600 by 800.
 (12) Q. You would simply drive the
 (13) resolution of the display downward if you
 (14) had only half meg?
 (15) A. That was the reason of having
 (16) the on-screen video, that you could do video
 (17) without the additional memory.
 (18) Q. I see. So for low memory
 (19) applications you really had no choice but to
 (20) put the video in the on-screen portion?
 (21) A. That's right. That's what that
 (22) was for was a very degenerated mode that -
 (23) a cheap - cheap application.
 (24) Q. So if you want to save a few
 (25) bucks you could get a very low capability

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(1) memory structure and still achieve video?
 (2) A. Right.
 (3) Q. But in general for full
 (4) resolution of a 1024 by 768 display you need
 (5) roughly 750K of display memory?
 (6) A. Right. Your memory is either
 (7) half meg, meg, meg and a half, two meg, you
 (8) know, in half meg increments.
 (9) Q. But when you had an entire meg
 (10) frame buffer, then you had roughly 250K
 (11) available for off-screen memory?
 (12) A. Yes. If you was running eight
 (13) bit mode.
 (14) Q. Obviously if you were running 16
 (15) bit mode, then you needed a meg and a half
 (16) to achieve single buffer, correct, single
 (17) on-screen buffer?
 (18) A. Uh-huh.
 (19) Q. And it's really a product of the
 (20) number of pixels -
 (21) A. Right.
 (22) Q. - times the number of bits of
 (23) resolution that you have?
 (24) A. Right.
 (25) Q. And Since I know Mr. Hill is a

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(1) math wizard - I mean, the way I got to 750K
 (2) was by multiplying 1024 times 768?
 (3) A. That's right.
 (4) Q. Times eight.
 (5) Can you recall what of the
 (6) precursor parts made by Pixel you used in
 (7) the 5440 design?
 (8) A. Just the 5430.
 (9) Q. Just a 5430. Did you use
 (10) anything out of the 2085?
 (11) A. No, we really redesigned all of
 (12) that.
 (13) Q. Did the 2085 anticipate a 32 bit
 (14) bus out of memory?
 (15) A. Yes, if I recall.
 (16) Q. So you launched the memo of
 (17) Nally 4 and you got some kind of response
 (18) from Cirrus, yes?
 (19) A. Yes.
 (20) Q. And it sounded like that was a
 (21) pretty positive response, correct?
 (22) A. Yes.
 (23) Q. What did you do next?
 (24) A. Shortly after this Schafer got
 (25) involved, and by the time January 1st rolled

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(1) around Schafer was -
 (2) MR. CORDELL: Do you need to
 (3) take a break?
 (4) THE WITNESS: I've got to call
 (5) work.
 (6) MR. CORDELL: Well, it's now
 (7) 12:10. Do you want to take a break for
 (8) lunch?
 (9) VIDEOGRAPHER: We're off the
 (10) video record at 12:13.
 (11) (A lunch recess was taken.)
 (12) Q. (By Mr. Cordell) Mr. Nally,
 (13) before we broke for lunch I believe you were
 (14) going to describe how Mr. Schafer got
 (15) involved in the 5440 project. Could you
 (16) continue with your answer?
 (17) A. About the turn of the year, when
 (18) the year rolled over, Schafer was actually
 (19) the design manager of this program and it
 (20) was his program.
 (21) Q. Meaning that he managed the
 (22) engineers that were actually doing the
 (23) design work on the 5440?
 (24) A. Yes.
 (25) Q. So you pretty much set the

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(1) architecture and then you it to Mr. Schafer
 (2) to implement that architecture?
 (3) A. Right.
 (4) MR. CORDELL: Let me have marked
 (5) as Nally 5 a multipage document bearing
 (6) Bates numbers CL 10384 through 87.
 (7) (Deposition Exhibit 5
 (8) was marked.)
 (9) Q. (By Mr. Cordell) Mr. Nally, can
 (10) you identify what we have marked as Nally 5?
 (11) A. Looks like this is the
 (12) original - the first proposal I presented.
 (13) Q. Okay. This would be the first
 (14) proposal to the second proposal of Nally 4?
 (15) A. Yes.
 (16) Q. Okay. Now, I notice there is no
 (17) circulation list as with Nally 4. Do you
 (18) recall who you gave Nally 5 to?
 (19) A. No. This right here is
 (20) apparently before I mailed it out or maybe
 (21) it was a copy of what I mailed out.
 (22) Q. Is this a draft?
 (23) A. Because it don't have the to and
 (24) from stuff on it. I usually did that only
 (25) when I distributed it.

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(1) Q. Now, I believe earlier today you
 (2) identified the so-called first proposal as
 (3) including two video windows. Do you
 (4) remember that?
 (5) A. Yes.
 (6) Q. Do you see two video windows
 (7) here?
 (8) A. Yes.
 (9) Q. VDW1 and VDW2?
 (10) A. Yes.
 (11) Q. I thought you also said that
 (12) this system had chroma keying; am I wrong?
 (13) A. Yes, if I remember right I did
 (14) have chroma keying.
 (15) Q. I don't see any chroma keying.
 (16) Well, there does seem to be an
 (17) input from the video pipeline into the
 (18) overlay key, correct?
 (19) A. Yes.
 (20) Q. Does that represent the chroma
 (21) key?
 (22) A. It's been a long time since I've
 (23) seen this, so I'm assuming - well, I
 (24) can't -
 (25) MR. HILL: Take your time to

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(1) review it.
 (2) THE WITNESS: Well, I can't say
 (3) that this is the final document or not
 (4) because the drawing indicates that there
 (5) is - the drawing on page one indicates that
 (6) there is a control coming from the video
 (7) window, which - no, coming from the video
 (8) FIFO. Really the one coming from the video
 (9) FIFO would be the chroma key going into the
 (10) overlay controls, but over here in the back
 (11) I don't mention anything about the video
 (12) input. So I can't really tell if this is a
 (13) complete document because it doesn't have
 (14) the addressing information on it or not, or
 (15) the who to list.
 (16) Q. (By Mr. Cordell) chroma keying
 (17) is a fairly difficult feature to implement
 (18) technologically, isn't that true?
 (19) A. Not difficult, just expensive.
 (20) Q. That's because chroma data is
 (21) derived rather than created?
 (22) A. No, you are looking for a range.
 (23) Q. So rather than be able to use a
 (24) simple register, as in the case of color
 (25) keying, you have to use some masking and

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(1) Q. Are you familiar with those
 (2) software calls?
 (3) A. At one point I was.
 (4) Q. Suffice it to say that those
 (5) calls relate to the creation and management
 (6) of more than one display surface on the
 (7) physical display, correct?
 (8) A. Yes.
 (9) Q. And there is this reference to a
 (10) primary display surface in the DCI spec.
 (11) A. Right.
 (12) Q. And in the document we have
 (13) marked as Nally 6 - well, first of all, can
 (14) you tell me whether you have ever seen this
 (15) before?
 (16) A. I can't recall. Chances are I
 (17) have. Something like this at Cirrus Logic
 (18) would cross my desk.
 (19) Q. At page 795 there is a
 (20) distinction drawn between the primary
 (21) surface, off-screen surface, and overlay
 (22) surfaces running on to page 796. Do you see
 (23) that?
 (24) A. Yes.
 (25)

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(1) some additional -
 (2) A. You have to use them - you have
 (3) to look for if it's the color above this
 (4) point or is it below that point.
 (5) Q. The chroma?
 (6) A. You are looking for a chroma
 (7) range.
 (8) Q. And that requires additional
 (9) hardware elements implemented?
 (10) A. Yes.
 (11) Q. And that would be additional
 (12) with respect to, say, a color key?
 (13) A. Yes.
 (14) Q. Let me have marked as Nally 6 a
 (15) multipage document bearing Bates number
 (16) 00794 through 97.
 (17) (Deposition Exhibit 6
 (18) was marked.)
 (19) Q. (By Mr. Cordell) Mr. Nally, can
 (20) you identify what we've marked as Nally 6?
 (21) A. It looks like a definition of
 (22) DCI. Let me look at it a little bit more.
 (23) Okay. It's some kind of
 (24) agreement between - or it's some kind of
 (25) definition of what Cirrus Logic and

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(1) Q. Does primary surface here equate
 (2) to on-screen memory?
 (3) MR. HILL: Again, I object that
 (4) he doesn't have personal knowledge of this.
 (5) THE WITNESS: Okay. Now that I
 (6) have read it, what is the question?
 (7) Q. (By Mr. Cordell) The question
 (8) is: Does the primary surface equate to
 (9) on-screen memory?
 (10) A. From what I can tell, yes.
 (11) Q. And does off-screen surface
 (12) equate to off-screen memory?
 (13) A. Yes.
 (14) Q. Did the 5440 comply with the DCI
 (15) specification?
 (16) A. Yes, it could handle this.
 (17) MR. CORDELL: Let me have the
 (18) reporter mark as Nally 7 a multipage
 (19) document bearing Bates numbers 3640 through
 (20) 3651.
 (21) (Deposition Exhibit 7
 (22) was marked.)
 (23) Q. (By Mr. Cordell) Mr. Nally, can
 (24) you identify what we have marked as
 (25) Exhibit 7?

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(1) Microsoft will have to do to get a DCI
 (2) implementation in place.
 (3) Q. First of all, what is a DCI
 (4) implementation?
 (5) A. That is a forerunner of Direct
 (6) X, it's direct something or another
 (7) interface or in active - what it is. It is
 (8) a way of bypassing the GUI interface to
 (9) access the frame buffer directly.
 (10) Q. Doesn't the DCI specification
 (11) also set up a series of software calls that
 (12) are used to manage Windows in a display
 (13) environment?
 (14) MR. HILL: I'll just make an
 (15) objection that it doesn't appear that
 (16) Mr. Nally has seen this document before, so
 (17) he lacks personal knowledge.
 (18) Q. (By Mr. Cordell) My question is
 (19) not limited to the document, sir. Do you
 (20) understand that?
 (21) A. Yeah. Repeat the question.
 (22) Q. Doesn't the DCI spec set up a
 (23) series of software calls that are used to
 (24) manage Windows in the display environment?
 (25) A. Yes.

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(1) A. This is apparently - and I'm
 (2) trying to recall here. As Schafer went off
 (3) and started working on the hardware, I
 (4) started putting together the software
 (5) package that would go with the hardware.
 (6) And this looks like somebody - I'm not sure
 (7) if it's my work or somebody else's work, to
 (8) define what the software requirements were
 (9) going to be. I don't think I wrote this
 (10) document. I'm not sure.
 (11) Q. Do you recall ever seeing it
 (12) before?
 (13) A. No.
 (14) Q. Tell me this: Is the Alpine CDX
 (15) another name for the 5440?
 (16) A. I'm trying to remember what CDX
 (17) stands for. I can't recall. We just play
 (18) with names in that day.
 (19) Q. Well, let me ask you this: With
 (20) respect to the 5440, and I'm reading the
 (21) first bullet point. Did the video data
 (22) exist in the same frame buffer as the
 (23) graphics data?
 (24) A. Which video data, playback?
 (25) Because this talks about playback data.

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(1) Q. Okay.
 (2) A. That's all it talks about is playback.
 (3) Q. Okay. Well, let me ask you
 (4) that. Did playback data exist in the same
 (5) frame buffer as video data?
 (6) A. Yes.
 (7) Q. I'm sorry, as graphics data?
 (8) A. Yes.
 (9) Q. Would your answer be different
 (10) for live video?
 (11) A. Well, no, it wouldn't because it
 (12) was a one frame buffer design.
 (13) Q. The next sentence reads: When
 (14) possible the video data resides in place --
 (15) A. What --
 (16) Q. I'm reading from the first
 (17) bullet point on Nally 7.
 (18) MR. HILL: Again, he lacks
 (19) personal knowledge regarding this document.
 (20) Q. (By Mr. Cordell) I'm just
 (21) asking the question. The next sentence
 (22) reads: When possible the video data resides
 (23) in place, meaning that the area used to
 (24) store the RGB frame data is used to store

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(1) the video data. Do you see that?
 (2) A. Are you on page one.
 (3) Q. Yes. Do you recall that being
 (4) true about the 5440?
 (5) MR. HILL: Object to form.
 (6) THE WITNESS: The 5440 had the
 (7) capability of doing on-screen video.
 (8) Q. (By Mr. Cordell) And in fact,
 (9) that was one of its operation modes when it
 (10) had a small frame buffer, right?
 (11) A. Yes.
 (12) Q. Who did the software for the
 (13) 5440?
 (14) A. Which piece?
 (15) Q. Okay. Let's start with the
 (16) drivers.
 (17) A. All of the graphics drivers and
 (18) the GUI drivers were done in Bellevue.
 (19) Q. Do you know by whom?
 (20) A. The people up there. I'm not --
 (21) I can't tell you who did it, but the people
 (22) up there at the time was Dave Pyke and Mike
 (23) McEntire.
 (24) Q. What other software did the 5440
 (25) require?

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(1) A. We had to have a DCI driver.
 (2) You would have bios. And there was some
 (3) other drivers that we had supply like
 (4) presentation manager, some of these others
 (5) that we contracted out to outside houses
 (6) that weren't important, but you had to have
 (7) them.
 (8) Q. Part of the suite that you had
 (9) to have?
 (10) A. Yes.
 (11) Q. Well, who did the DCI driver for
 (12) the 5440?
 (13) A. That was done under my direction
 (14) by one of my engineers.
 (15) Q. Who was that?
 (16) A. Scott McDonald.
 (17) Q. Who did the bios?
 (18) A. That was done in Fremont, and I
 (19) do not know the individual's name.
 (20) Q. What about the presentation
 (21) manager?
 (22) A. I think that was contracted out.
 (23) MR. CORDELL: I'll now ask the
 (24) reporter to mark as Exhibit 8 a document
 (25) bearing Bates number CL17724 through 30.

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(1) (Deposition Exhibit 8
 (2) was marked.)
 (3) Q. (By Mr. Cordell) Mr. Nally, can
 (4) you identify what we've marked as Exhibit 8?
 (5) A. It's a -- what we call a
 (6) marketing requirement or marketing spec for
 (7) a product.
 (8) Q. Sorry. Go ahead.
 (9) A. For a product.
 (10) Q. So the idea here is that you
 (11) summarize all of the features from a
 (12) marketing prospect that the product has to
 (13) have and then the engineers know what
 (14) they've got to build?
 (15) MR. HILL: Object to form.
 (16) THE WITNESS: Will you repeat
 (17) that because it's --
 (18) Q. (By Mr. Cordell) I'm just
 (19) wondering what the function of this document
 (20) is.
 (21) A. Really it's the other way
 (22) around. Some engineers get the marketing
 (23) people to go sell things without --
 (24) Q. Well, but don't the marketing
 (25) folks have some input as to what goes into

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(1) the chip?
 (2) A. Yeah, this document is really
 (3) generated by the architect. Our marketing
 (4) architect relationship, shape respect would
 (5) come from this. This actually defines what
 (6) the product has got to be at a very high
 (7) level.
 (8) Q. Who puts this together?
 (9) A. At Cirrus Logic it's a potpourri
 (10) of people.
 (11) Q. Well, let me ask it a different
 (12) way. Who put this one together?
 (13) A. Let me look at it. Well,
 (14) there's a clue down at the bottom.
 (15) Q. I wasn't going to lead you.
 (16) A. Yes.
 (17) Q. Does that mean Mr. Schafer
 (18) prepared this document?
 (19) A. Yes.
 (20) Q. Do you recall having any input
 (21) into it?
 (22) A. Yes. Like I said, it's a
 (23) potpourri of people, input from my spec went
 (24) into this and input from David Keene went
 (25) into this, input from some marketing people

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(1) went into this, because it was at this point
 (2) Schafer's program. He was responsible to
 (3) define for upper management exactly what it
 (4) was he was fixing to build.
 (5) Q. Now, under the Alpine CDX
 (6) features the first one says graphics
 (7) features same as 5430. Do you see that?
 (8) A. Yes.
 (9) Q. Is that accurate? Were the
 (10) graphics features for the 5440 the same as
 (11) the 5430?
 (12) MR. HILL: Object to form.
 (13) THE WITNESS: I would have to
 (14) say it was a cut and paste type thing. I
 (15) wasn't involve in the graphics. I was just
 (16) involved in the video.
 (17) Q. (By Mr. Cordell) But your
 (18) understanding is that they cut the graphics
 (19) features out of the 5430 and pasted them
 (20) into the 5440?
 (21) A. I'm just saying this is probably
 (22) what happened. I'm not saying this is what
 (23) happened, because the 5430 was the baseline
 (24) product.
 (25) Q. The 5430 existed prior to the

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(1) 5440, correct?
 (2) A. Yes.
 (3) Q. Do you know for how long?
 (4) A. I'm not sure, but I think that
 (5) we was actually working on the 40 before the
 (6) 30 shipped.
 (7) Q. Do you know if the 5430 shipped
 (8) in 1993?
 (9) A. I don't know when it shipped.
 (10) Q. Under video playback features I
 (11) see optional on-screen storage of video
 (12) allows acceleration with no additional frame
 (13) buffer memory. Do you see that?
 (14) A. Where at?
 (15) Q. Under video playback features on
 (16) the first page?
 (17) A. Yes.
 (18) Q. Does this again refer to the
 (19) idea that for small buffer memory sizes you
 (20) can store video in the on-screen portion of
 (21) the frame buffer?
 (22) A. Yes.
 (23) Q. Now turning back to page 726 of
 (24) this exhibit. Under the heading video
 (25) related changes, this again states that

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(1) video may be defined within the on-screen
 (2) portion of the video - of the frame buffer
 (3) memory, correct?
 (4) A. Okay. Repeat the question.
 (5) Q. My question was: Does this set
 (6) forth that the 5440 includes an operating
 (7) mode wherein video data is stored within the
 (8) on-screen portion of the frame buffer
 (9) memory?
 (10) MR. HILL: Objection. The
 (11) document speaks for itself.
 (12) THE WITNESS: The document says
 (13) on screen or off screen.
 (14) Q. (By Mr. Cordell) And that would
 (15) mean to you, as a former engineer at Cirrus,
 (16) that video can be stored in the on-screen
 (17) portion of the frame buffer?
 (18) A. That was a requirement.
 (19) Q. The next paragraph down
 (20) summarizes a video data encoding screen
 (21) known as PackJR. Do you see that?
 (22) A. Yes.
 (23) Q. What is PackJR?
 (24) A. That is a format that was
 (25) devised by me and another engineer there at

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(1) Pixel called John - what was his name? It
 (2) started with a J. That's where the JR came
 (3) from. Jeff Niehaus. And what it is, we
 (4) devised a way to pack four pixels of YUV
 (5) data in 32 bits.
 (6) Q. And the idea was that by doing
 (7) so you could then store the video data in
 (8) the same pixel depth that you would store
 (9) graphics data?
 (10) MR. HILL: Object to form.
 (11) Q. (By Mr. Cordell) Did you answer
 (12) the question?
 (13) A. In a bit mode, yes.
 (14) Q. Okay. And this facilitated
 (15) storage of video data in the on-screen
 (16) portion of the frame buffer, correct?
 (17) MR. HILL: Objection.
 (18) Ambiguous.
 (19) THE WITNESS: Repeat.
 (20) Q. (By Mr. Cordell) This ability
 (21) to pack video data into the same pixel depth
 (22) as graphics data facilitated storage of
 (23) video data within the on-screen portion of
 (24) the frame buffer, correct?
 (25) MR. HILL: Same objection.

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(1) THE WITNESS: Well, that's in
 (2) the eight bit mode.
 (3) Q. (By Mr. Cordell) Yes.
 (4) A. In the eight bit graphics mode.
 (5) Q. And certainly for small frame
 (6) buffer sizes chances are you were in the
 (7) eight bit graphics mode?
 (8) A. Yes, sir.
 (9) MR. CORDELL: I would now like
 (10) to have marked as Nally 9 United States
 (11) patent 5,506,604.
 (12) (Deposition Exhibit 9
 (13) was marked.)
 (14) Q. (By Mr. Cordell) Mr. Nally, can
 (15) you identify what we have marked as Nally 9?
 (16) A. That's the patent to cover the
 (17) PackJR compression format.
 (18) Q. I note that the - and this is
 (19) your patent, correct?
 (20) A. Yes.
 (21) Q. And Mr. Schafer and Mr. Niehaus
 (22) are also named?
 (23) A. Yes.
 (24) Q. I note that the figure used for
 (25) this patent is remarkably similar to that of

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(1) Nally 4; am I wrong?
 (2) MR. HILL: Objection. The
 (3) document speaks for itself.
 (4) Q. (By Mr. Cordell) Can you
 (5) examine Nally 4?
 (6) A. Yes. They are the same.
 (7) MR. HILL: Take your time,
 (8) Mr. Nally, and make sure.
 (9) Q. (By Mr. Cordell) Did you
 (10) provide -
 (11) A. Correction. There is a
 (12) difference.
 (13) Q. Okay. What is that difference?
 (14) A. You see - in Exhibit 4 you see
 (15) a Y zoomer and a PackJR, and in Exhibit 9
 (16) you see an encoder and a multiplexer and we
 (17) drew the window control showing it how it
 (18) actually controls the different portions of
 (19) the pipeline.
 (20) Q. Sort of expanded the video
 (21) pipeline elements a bit there?
 (22) A. We drew it to make it more
 (23) clear.
 (24) Q. Okay. Is it your recollection,
 (25) though, that the document of Nally 4 formed

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(1) the basis for the patent set forth as
 (2) Nally 9?
 (3) A. It defined the pipeline that was
 (4) used.
 (5) MR. CORDELL: I'd now like to
 (6) have marked as Nally 10 a document bearing
 (7) Bates CL41087 through 105.
 (8) (Deposition Exhibit 10
 (9) was marked.)
 (10) Q. (By Mr. Cordell) Mr. Nally, can
 (11) you identify Exhibit 10?
 (12) A. It looks like John Schafer's
 (13) design specifications for the 5440.
 (14) Q. Can you recall whether or not
 (15) this was the earliest specification that he
 (16) produced?
 (17) A. I cannot recall that, no.
 (18) Q. He did, in fact, produce a
 (19) number of them, correct?
 (20) A. Yeah, there's always
 (21) iterations. There's always drafts that
 (22) circulated.
 (23) Q. Now, at some point Cirrus
 (24) decided to seek a patent on this design,
 (25) correct?

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(1) A. Yes.
 (2) Q. Do you recall when that was?
 (3) A. It was have after I went through
 (4) all of my marketing stuff because I didn't
 (5) start collecting stuff for the patents until
 (6) after I finished promoting the product.
 (7) Q. Okay. Well, the specification
 (8) that we've marked now as Nally 10, does this
 (9) indicate to you a particular point in the
 (10) development process and does this suggest
 (11) that there were prototypes built or that you
 (12) had sufficiently flushed out the design to
 (13) know that it would work?
 (14) MR. HILL: Objection.
 (15) Compound.
 (16) THE WITNESS: The best way for
 (17) me to describe this is to - me and Schafer
 (18) were a team. I came up with the ideas. He
 (19) made them work. This tells me that he
 (20) understood exactly what I wanted.
 (21) Q. (By Mr. Cordell) And when you
 (22) say this, do you mean Nally 10?
 (23) A. Yes.
 (24) Q. Could it have been as early as
 (25) Nally 8 that he understood exactly what you

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(1) wanted?
 (2) A. Nally 8? He could have, but I
 (3) could not derive that from this information.
 (4) MR. HILL: The objection I was
 (5) going to make is calls for speculation.
 (6) Q. (By Mr. Cordell) So it would be
 (7) your testimony that Mr. Schafer would be the
 (8) guy who could tell us when he had pretty
 (9) much figured out to how to make this thing
 (10) work?
 (11) MR. HILL: Objection. Calls for
 (12) speculation.
 (13) THE WITNESS: What is the best
 (14) way to answer this? If I didn't think it
 (15) would have worked I never would have
 (16) proposed it. Okay. It was just a matter of
 (17) getting the cost down.
 (18) Q. (By Mr. Cordell) So even as far
 (19) back as Nally 4 you were confident that the
 (20) design you set forth here would in fact
 (21) work?
 (22) A. Right.
 (23) Q. And it was really just a matter
 (24) of working out the engineering details?
 (25) A. Yes.

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(1) Q. I won't belabor the record by
 (2) marking all of the design specifications,
 (3) but I note that there are a number of them
 (4) going forward in time. Do you recall when
 (5) the first occasion was wherein a prototype
 (6) of the 5440 was produced?
 (7) A. There are no prototypes.
 (8) There's only engineering samples.
 (9) Q. When was the first time it was
 (10) sampled?
 (11) A. I can't recall.
 (12) Q. Who created the first samples?
 (13) A. John Schafer.
 (14) Q. I mean what fab?
 (15) A. I do not know.
 (16) Q. You mentioned a moment ago that
 (17) you began to do some marketing work. Do you
 (18) recall when you began to do the marketing
 (19) work?
 (20) A. Not really.
 (21) Q. Before we get to that point let
 (22) me just show you a document and ask you if
 (23) you have ever seen it before?
 (24) A. This -
 (25) Q. We won't mark it at this time.

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(1) A. This looks like some
 (2) presentation material that I put together.
 (3) I'm not sure if this is mine or Jim
 (4) Fontaine's version of my presentation, but
 (5) this is a presentation that I had input into
 (6) constructing.
 (7) MR. CORDELL: Why don't we go
 (8) ahead and mark it, then. We'll mark that as
 (9) Nally 10 - it's 11.
 (10) (Deposition Exhibit 11
 (11) was marked.)
 (12) MR. CORDELL: For the record
 (13) that's Bates numbers CL3265 through 72.
 (14) Q. (By Mr. Cordell) Mr. Nally, do
 (15) you recall ever making this presentation?
 (16) A. I recall being in a number of
 (17) presentations to a number of customer. I
 (18) can't remember the material I presented. I
 (19) can't say this was presented. All I know is
 (20) that I was present at a number of
 (21) presentations.
 (22) Q. Well, do you remember any of the
 (23) customers?
 (24) A. We went to Japan and showed it
 (25) to Toshiba and I can't - IBM Japan. We

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(1) showed it to IBM. We showed it to Intel.
 (2) Q. Both in the U.S.?
 (3) A. Yes.
 (4) Q. When did you go to Japan?
 (5) A. I can't answer that.
 (6) Q. Before Christmas or after
 (7) Christmas?
 (8) A. I can't remember whether it was
 (9) cold or hot.
 (10) Q. Do you remember the food?
 (11) A. I remember Bob Connor took me
 (12) out and gave me some sampling of the local
 (13) cuisines.
 (14) Q. That's a game played let's see
 (15) what we can make him eat.
 (16) A. Yeah.
 (17) Q. Well, do you recall what you
 (18) presented to Toshiba?
 (19) A. No, I can't. I can't remember
 (20) the exact presentations at any of those.
 (21) Each one was a little bit different.
 (22) Q. Did you present it to the
 (23) Toshiba laptop guys?
 (24) A. Yes.
 (25) Q. And what about IBM Japan, was

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(1) that also portables?
 (2) A. Yes.
 (3) Q. Anybody else at Toshiba besides
 (4) the portables?
 (5) A. I don't think so.
 (6) Q. And what about IBM Japan,
 (7) anybody besides the portables?
 (8) A. No.
 (9) Q. Were these multiple meetings or
 (10) was it just sort of one meeting at each
 (11) company?
 (12) A. One meeting with each company.
 (13) Q. And on the U.S. side who did you
 (14) present to at IBM?
 (15) A. I think they were in Lexington.
 (16) Q. Is that Kentucky or
 (17) Pennsylvania?
 (18) A. Kentucky.
 (19) Q. And what about at Intel? Who
 (20) did you present to at Intel?
 (21) A. Their board shop.
 (22) Q. And where is that?
 (23) A. Hillsboro. I think that's what
 (24) it's called.
 (25) Q. Do you recall any individuals at

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(1) Intel?
 (2) A. No.
 (3) Q. What about at IBM?
 (4) A. Tarabaum.
 (5) Q. I'm sorry?
 (6) A. Tarabaum, I think is his name.
 (7) Matt Tarabaum.
 (8) Q. Do you remember a concept at IBM called the super video card?
 (9) A. No.
 (10) Q. Who besides yourself attended the meetings on behalf of Cirrus?
 (11) A. Jim Fontaine, Bob Connor, and the local sales rep of each location.
 (12) Q. So Mr. Fontaine and Connor attended all four meetings?
 (13) A. I believe so.
 (14) Q. Do you recall the local rep for Toshiba?
 (15) A. No.
 (16) Q. And what about IBM Japan?
 (17) A. Bob - no, not Japan, I don't know.
 (18) Q. Okay. What about IBM U.S.
 (19) A. Bob Poroky.

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(1) A. Yes.
 (2) Q. I'm a little confused because the date is December 13 and it seems to set a meeting for December 8th?
 (3) A. You've got me confused, too, because -
 (4) Q. Well, let me ask you this: Can you tell whether or not this related to the 5440 device?
 (5) A. Because it says Alpine I must assume that - and because it says video for Windows, I can't remember - the name changed quite a few times, but I can't remember if - I'm pretty sure you can say that this is related to the 5440.
 (6) Q. Now, just so we're clear. Where did Chris Reinhart work at the time?
 (7) A. He worked at Pixel.
 (8) Q. And Gerald Weiniger, where did he work?
 (9) A. He worked at Pixel.
 (10) Q. And John Norsworthy?
 (11) A. He worked at Pixel.
 (12) Q. So the only guy from out of town here would be Mr. Fontaine?

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(1) Q. Do you know how to spell Poroky?
 (2) A. I don't.
 (3) Q. And how about Intel?
 (4) A. I can't remember the guy's name.
 (5) Q. But suffice it to say there was a sales guy that went along?
 (6) A. Yes.
 (7) MR. CORDELL: Let me have marked as Nally 12 a single-page document bearing Bates numbers CL17768.
 (8) (Deposition Exhibit 12 was marked.)
 (9) Q. (By Mr. Cordell) Mr. Nally, can you identify Nally 12?
 (10) A. Okay. What is the question again?
 (11) Q. Can you identify this document?
 (12) A. It looks like a memo from Jim Fontaine to the staff at Cirrus Logic covering something called Alpine video for Windows program kick off meeting. I don't recall - I don't remember anything about the meeting.
 (13) Q. Did you attend the meeting?
 (14) A. My name is here. I'm assuming I

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(1) A. He was at Pixel. They're all from Pixel.
 (2) Q. And I take it none of these gentlemen other than Mr. Fontaine accompanied you on the four meetings we discussed a few moments ago?
 (3) A. The presentation - or the trips?
 (4) Q. Right.
 (5) A. Yeah, none of these other people went out on those trips.
 (6) Q. Under marketing discussions are target customers for product feedback. Do you see that?
 (7) A. Yes.
 (8) Q. Do you recall any target customers?
 (9) A. IBM and Intel.
 (10) Q. So the four you identified?
 (11) A. Pardon?
 (12) Q. The four you identified?
 (13) A. Yes, they were some of the customers. Anybody that built a PC was a target customer.
 (14) Q. We'll reserve some of these

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(1) did.
 (2) Q. Mr. Nally, did you maintain a calendar while employed by Cirrus?
 (3) A. I'm very sloppy.
 (4) Q. Did you have any kind of a diary?
 (5) A. Just what I kept on my computer.
 (6) Q. Did you have a computerized schedule?
 (7) A. It was hard for me to keep a schedule because I would get calls like Sunday night or Saturday night, be in Fremont Monday morning. So it was hard for me to really keep a schedule. I was on the run a lot.
 (8) Q. Did you get calls saying appear at a deposition?
 (9) A. No, it was be here for a meeting like this where decisions would be made and my presence needed to be there.
 (10) Q. This particular meeting looks like it was to take place in Pixel - at Pixel, correct?
 (11) A. Yes.
 (12) Q. In Texas?

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(1) documents for Mr. Schafer. We don't want him to feel lonely?
 (2) MR. CORDELL: Let me have the reporter mark as Nally 13, multipage document bearing Bates numbers 17731 through 17747.
 (3) (Deposition Exhibit 13 was marked.)
 (4) Q. (By Mr. Cordell) Mr. Nally, can you identify what we've marked as Exhibit 13?
 (5) A. It looks like a presentation put together by somebody other than me.
 (6) Q. Do you know who?
 (7) A. It looks like Jim Fontaine's work.
 (8) Q. Where is Mr. Fontaine employed now, do you know?
 (9) A. He's self-employed, as far as I know.
 (10) Q. Do you know where?
 (11) A. In Plano. The name of the company?
 (12) Q. Yes, please.
 (13) A. I think it's called The Fontaine

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Group.
 Q. Is he a consultant?
 A. I guess you could call him a venture capitalist.
 Q. Sounds like real money.
 Is he still active in the electronics industry?
 A. Yes, as far as I know. He goes out and looks for ideas and tries to get people to finance them. He finds somebody with - he makes the connection between the engineers with the good ideas and the people with the money, or at least that's what - last time I talked to him that's what he was trying to do.
 Q. And how long ago was that?
 A. I think it was about two years ago.
 Q. Turning back to page 738. Do you see the slide entitled Alpine AVA?
 A. Yes.
 Q. Does this describe the 5440 product?
 MR. HILL: Objection. The document speaks for itself.

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I would caution you not to speculate about that. If you know it, that's fine.
 THE WITNESS: The only thing that bothers me is the first bullet, audio video.
 Q. (By Mr. Cordell) So with the exception of the audio acceleration do the remainder of the features on page 17738 relate to the 5440?
 A. It's a fairly accurate description.
 Q. Turning now back to page 17741. Can you tell us what is Alpine AVA II was?
 A. No, probably something David Keene was working on.
 Q. He was one of the fellows out in California?
 A. Yes, but this is the first time I've ever seen AVA II.
 Q. And I take it you don't know to whom this presentation was made?
 A. No.
 Q. The 5440 was part of the Alpine line, correct?

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A. Yes.
 Q. What products were in the Nordic line?
 A. The Nordic was the desktop products - I mean, the flat panel products that parallel Alpine.
 MR. CORDELL: Let me have marked, then, as Nally 14 a multipage document bearing Bates number CL17825 through 17835 - make that 36.
 (Deposition Exhibit 14 was marked.)
 Q. (By Mr. Cordell) Mr. Nally, can you identify Exhibit 14 for us?
 A. It looks like a presentation for the Nordic product line.
 Q. Have you ever seen this before?
 A. Probably have.
 Q. Can you tell us what product it relates to?
 A. The Nordic product line was the 32 bit flat panel graphic controllers.
 Q. Do you happen to know what those are by model number?
 A. I haven't got a clue. I do not.

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Q. Could it be the 5465?
 MR. HILL: Objection. Calls for speculation.
 THE WITNESS: I can't - I just don't remember the number.
 Q. (By Mr. Cordell) That's fine.
 The flat panel parts were developed out in California, correct?
 A. Yes.
 Q. Who was the person that was doing that work for Cirrus?
 A. The project leader was Vlad Bril.
 Q. Vlad Bril?
 A. Right.
 Q. Do you know if Mr. Bril is still employed by Cirrus?
 A. No, he's not.
 Q. Do you know where he's employed?
 A. No, I do not.
 Q. It's somewhat faint on Exhibit 14, but there appears to be on several of the slides an IBM sort of in the shadow. Do you see that on your copy?
 A. Yes. Some of them say IBM and

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it looks like some say Intel.
 Q. Do you know what the significance of that information is?
 A. Yes.
 Q. And what is it?
 A. It was for security reasons. We made a presentation to a company. The question this has nothing to do with - this has something to do with the way they market -
 THE WITNESS: Is it okay to answer? I don't know if I'm violating -
 MR. HILL: We're under a protective order here, so -
 THE WITNESS: Okay.
 MR. HILL: So if it's confidential information it's going to be protected as such.
 THE WITNESS: What it amounts to is that if they ever discover this stuff on the street, they will look at these markings and know where it came from because they gave this out to the customers.
 Q. (By Mr. Cordell) I see. So Cirrus' effort to track this information so

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that if it ever shows up in the hands of a competitor you are able to go back to that customer and yell at them for giving away your information?
 A. Yes.
 Q. There appears to be a date here on Nally 14 of December 1993. Do you see that?
 A. Yes.
 Q. Can you tell us whether or not that date is accurate?
 A. I'm pretty sure it is.
 MR. HILL: I'll just caution you not to speculate. If you know it, say it.
 If you don't, you don't.
 THE WITNESS: Okay.
 Q. (By Mr. Cordell) Do you recall whether or not Cirrus had entered into an agreement with IBM to maintain this presentation as confidential between Cirrus and IBM?
 A. The presentations at the time was always under NDA.
 Q. But the presentation wasn't being made in order to educate IBM,

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(1) correct?
 (2) MR. HILL: Objection.
 (3) Ambiguous.
 (4) Q. (By Mr. Cordell) Well, why was
 (5) the presentation being made, the
 (6) presentation of Nally 14?
 (7) A. To introduce them to a new
 (8) product.
 (9) Q. The idea was to sell the product
 (10) to them, correct?
 (11) A. Right.
 (12) Q. So while you may have had the
 (13) understanding that they would keep it
 (14) confidential, what you hoped to do was to
 (15) get a purchase order from IBM relating to
 (16) these products, correct?
 (17) A. Yes.
 (18) MR. HILL: Counsel, do you mind
 (19) if I take a break?
 (20) MR. CORDELL: Sure.
 (21) (A recess was taken.)
 (22) VIDEOGRAPHER: We're on the
 (23) video record at 2:36. Tape three.
 (24) Q. (By Mr. Cordell) Mr. Nally,
 (25) before the break we were examining Nally 14

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(1) and I just want to ask you, sir, do you
 (2) recall whether or not this presentation was
 (3) made to any of the four customers you
 (4) identified; Toshiba, IBM Japan, IBM U.S. or
 (5) Intel?
 (6) A. I can't say this was the
 (7) material. Bob Connor was the marketing
 (8) director for the Nordic product line making
 (9) presentations.
 (10) Q. Do you know where Mr. Connor is
 (11) employed today?
 (12) A. I think it's Applied Materials.
 (13) Q. Is that out in California?
 (14) A. Yes.
 (15) MR. CORDELL: Let me have marked
 (16) as Exhibit 15 a two-page document bearing
 (17) Bates Number CL02227 and 8.
 (18) (Deposition Exhibit 15
 (19) was marked.)
 (20) Q. (By Mr. Cordell) Mr. Nally, can
 (21) you identify what we've marked as
 (22) Exhibit 15?
 (23) A. It looks like a document from
 (24) John Schafer. I don't know what it is.
 (25) Q. The heading reads VLSI design

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(1) weekly status. Do you see that?
 (2) A. Yes, but I don't really know who
 (3) it's - what it's for, is it for his team or
 (4) is it for John - well, it's to John
 (5) Norsworthy, who is his boss.
 (6) Q. I note that you are copied on
 (7) the memo. Does that refresh your
 (8) recollection?
 (9) A. Yeah, I've got a lot of
 (10) documents I didn't read. I didn't pay close
 (11) attention to day-to-day activity that did
 (12) not relate to me.
 (13) Q. Under Alpine CDX do you see the
 (14) project design specification?
 (15) A. Yes.
 (16) Q. And then over on the right side
 (17) under activity the final sentence says
 (18) waiting on customer feedback to determine
 (19) the scope of WavePort support and Alpine
 (20) CDX. Do you see that?
 (21) A. Yes.
 (22) Q. Can you tell me what this
 (23) customer feedback was?
 (24) A. I can only speculate.
 (25) Q. Well, I don't want you to do

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(1) that, but will you agree with me that in the
 (2) early part of 1994 it was Cirrus' practice
 (3) to take a design out and show it to
 (4) customers to make sure that they wanted to
 (5) buy it before they actually built it?
 (6) A. Yes.
 (7) Q. Pretty standard practice in the
 (8) video industry?
 (9) A. Yes.
 (10) Q. It's not much use to make a
 (11) product nobody wants to buy?
 (12) A. Yes.
 (13) Q. Do you recall, then, whether or
 (14) not with respect to the 5440 Cirrus took it
 (15) out and showed it to customers and
 (16) determined whether or not there was any
 (17) interest in the product before they built
 (18) it?
 (19) MR. HILL: Object to form.
 (20) THE WITNESS: We did have that,
 (21) you know, at Cirrus that was the practice.
 (22) Every product went through that cycle.
 (23) Q. (By Mr. Cordell) Turning to the
 (24) second page of Nally 15 there is a note
 (25) under priorities that reads: Alpine CDX,

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(1) and then in paren, formerly Alpine AV or
 (2) Alpine AVA?
 (3) A. Right.
 (4) Q. Does that refresh your
 (5) recollection of the genesis of the names for
 (6) these products?
 (7) A. Alpine CDX meant playback only.
 (8) These names at this time they don't have any
 (9) meaning to me. At the time of this document
 (10) they were different options of which way we
 (11) would go with the design effort. So I can't
 (12) really tell you what each one of them
 (13) meant. You know what I'm saying? You take
 (14) a look at your options and you try to get as
 (15) many options as you can and then you select
 (16) one that looks best.
 (17) Q. Well, in the commercial version
 (18) of the 5440 did it include live video?
 (19) A. Yes.
 (20) Q. And did it include video
 (21) playback?
 (22) A. Yes.
 (23) Q. So is it your testimony, then,
 (24) that the 5440 included a feature not
 (25) included within the Alpine CDX?

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(1) A. What is the best way to answer
 (2) this?
 (3) MR. HILL: Do you need to look
 (4) at the documents to refresh your
 (5) recollection?
 (6) THE WITNESS: No, I'm just
 (7) trying to put this in words that doesn't
 (8) make us look like a bunch of renegades. We
 (9) knew what we was going to do. We were just
 (10) trying to get management to buy in, so you
 (11) dress it up for management buy in.
 (12) Q. (By Mr. Cordell) So you were -
 (13) at least with respect to management you were
 (14) feeding them slowly?
 (15) A. Yes.
 (16) Q. The idea being that once you got
 (17) them on board with the basic chip, you could
 (18) then also include the video - the live
 (19) video feature?
 (20) A. Yes.
 (21) Q. And in fact your specification
 (22) of Nally 4 way back in November of 1993 did,
 (23) in fact, include the live video?
 (24) A. Yes.
 (25) Q. Now, do you recall what it was

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(1) that you talked to customers about? Did it

(2) include the live video or not?

(3) MR. HILL: Object to form.

(4) THE WITNESS: I can't answer

(5) that. I would say no.

(6) Q. (By Mr. Cordell) Now, what is

(7) it that leads you to say no?

(8) A. Because management did not know

(9) at this time that we was going to be able to

(10) do the video window, live video.

(11) Q. Do you recall when you informed

(12) management about the live video window?

(13) A. I do not.

(14) Q. Obviously there may be documents

(15) that will reflect your actual presentations

(16) to customers like Toshiba, correct?

(17) A. Not necessarily.

(18) Q. Why do you say not necessarily?

(19) A. How would you present something

(20) to a customer in front of your manager and

(21) it be a surprise to your manager?

(22) Q. Well, let me -- is it then safe

(23) for me to assume that Mr. Fontaine didn't

(24) know about the live video feature?

(25) MR. HILL: Objection. Calls for

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(1) speculation.

(2) THE WITNESS: This is something

(3) we wanted to do. We always wanted to do

(4) it. When management finally bought into it,

(5) I can't really say.

(6) Q. (By Mr. Cordell) In your memo

(7) of Nally 4, though, you circulated to a

(8) number of members of management, correct?

(9) A. Yes. You have to understand the

(10) politics at Cirrus.

(11) Q. Okay. Enlighten me.

(12) MR. HILL: I'll object to the

(13) form of that.

(14) Q. (By Mr. Cordell) Well,

(15) Mr. Fontaine certainly could have picked up

(16) the idea that you were going to provide live

(17) video out of Nally 4, correct?

(18) A. Yes, but it wasn't Jim

(19) Fontaine's final decision.

(20) Q. Whose decision was it?

(21) A. Bill Chu's.

(22) Q. Bill Chu?

(23) A. Really a committee decision.

(24) Q. Again, I'm curious as to why you

(25) believe that you wouldn't have mentioned

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(1) that feature to customers in the fall of

(2) 1993.

(3) MR. HILL: Objection. That

(4) assumes facts not in evidence. There hasn't

(5) been proof made that --

(6) MR. CORDELL: You made your

(7) objection.

(8) THE WITNESS: I'll tell you what

(9) I know, okay. There was a party at Cirrus

(10) Logic that said the video windows was not

(11) necessary, playback was where the money was,

(12) convinced upper management that there was no

(13) need for video -- live video.

(14) At Pixel we always thought there

(15) was, so we never let it die, but we couldn't

(16) go out and sell it to the customers because

(17) management said that is not a feature.

(18) Whatever that feature list is, is all.

(19) Q. (By Mr. Cordell) So was there

(20) some decision made between the time of

(21) Nally 4, which I guess was November 12, 1993

(22) and your customer presentations to

(23) de-emphasize the live video at least at the

(24) corporate level?

(25) MR. HILL: Objection. Assumes

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(1) Japanese, so I don't know what the other one

(2) is. I would have to look at these. Give me

(3) some time and I'll look at them and try to

(4) tell you what it is.

(5) Q. Okay. Why don't you go ahead?

(6) MR. HILL: Counsel, why don't

(7) you ask if he has seen it or not so we know

(8) whether he has personal knowledge or not?

(9) MR. CORDELL: Let's press

(10) forward.

(11) THE WITNESS: I vaguely remember

(12) something about going over to IBM in the

(13) area of video notebooks, but I can't

(14) remember exactly what it was.

(15) Q. (By Mr. Cordell) Does this

(16) refresh your recollection of your meeting

(17) with IBM Japan?

(18) A. No, I can't recall if this

(19) was -- I can't recall if I was involved in

(20) this. I just can't remember, I'm sorry.

(21) Q. I believe you were unable to

(22) tell us who the local salesperson was in

(23) your visit to IBM Japan. Does this help you

(24) recall?

(25) A. John Niijima -- John was present

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(1) facts not in evidence.

(2) THE WITNESS: Yes, that requires

(3) speculation on my part.

(4) Q. (By Mr. Cordell) Well, you seem

(5) to know that there's some political battle

(6) going on wherein unseen forces in management

(7) had decided to -- that you didn't need the

(8) video and I guess I'm curious as to whether

(9) or not there was a meeting that took place

(10) or -- how did you learn that?

(11) MR. HILL: Object to the form.

(12) THE WITNESS: One individual.

(13) Q. (By Mr. Cordell) Who was that?

(14) A. David Keene.

(15) Q. And Mr. Keene conveyed to you

(16) that upper management was not interested in

(17) the live video?

(18) A. No, he convinced upper

(19) management that live video was not

(20) important.

(21) Q. I see. And how was that, then,

(22) communicated to you?

(23) A. Drop the feature.

(24) Q. Did they call you up and say

(25) drop the feature?

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(1) A. I don't remember how it was

(2) conveyed.

(3) MR. CORDELL: Counsel, we are,

(4) of course, keenly interested in any

(5) materials within the company for

(6) presentations that the witness has

(7) identified. If we could have those as soon

(8) as possible, that would be most helpful.

(9) MR. HILL: Well, we have made an

(10) exhaustive search.

(11) MR. CORDELL: I would now like

(12) to have marked as Nally 16 a document

(13) bearing Bates CL17811 through 17821.

(14) (Deposition Exhibit 16

(15) was marked.)

(16) Q. (By Mr. Cordell) Can you

(17) identify what we have marked as Nally 16?

(18) A. It's a memo from Dennis Jow

(19) and --

(20) MR. HILL: There's more than one

(21) document here.

(22) THE WITNESS: The first is a

(23) document from Dennis Jow. The second one is

(24) a document from John Niijima in Japan, and I

(25) would have to read -- and I can't read

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(1) Japanese, so I don't know what the other one

(2) is. I would have to look at these. Give me

(3) some time and I'll look at them and try to

(4) tell you what it is.

(5) Q. Okay. Why don't you go ahead?

(6) MR. HILL: Counsel, why don't

(7) you ask if he has seen it or not so we know

(8) whether he has personal knowledge or not?

(9) MR. CORDELL: Let's press

(10) forward.

(11) THE WITNESS: I vaguely remember

(12) something about going over to IBM in the

(13) area of video notebooks, but I can't

(14) remember exactly what it was.

(15) Q. (By Mr. Cordell) Does this

(16) refresh your recollection of your meeting

(17) with IBM Japan?

(18) A. No, I can't recall if this

(19) was -- I can't recall if I was involved in

(20) this. I just can't remember, I'm sorry.

(21) Q. I believe you were unable to

(22) tell us who the local salesperson was in

(23) your visit to IBM Japan. Does this help you

(24) recall?

(25) A. John Niijima -- John was present

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(1) at all of the meetings, but I'm not sure if
 (2) he was the marketing rep.
 (3) Q. That's Niijima?
 (4) A. John Niijima, yes.
 (5) Q. Turning back to page 17815.
 (6) This appears to be a request for quotation
 (7) for a particular product by IBM; is that
 (8) accurate?
 (9) MR. HILL: Objection. The
 (10) document speaks for itself.
 (11) THE WITNESS: I have no idea
 (12) what it is. This right here?
 (13) Q. (By Mr. Cordell) Yes.
 (14) A. I have no idea.
 (15) Q. Turning to the functional
 (16) overview at page 17818.
 (17) A. Okay.
 (18) Q. Can you tell me whether or not
 (19) from this feature list you are able to tell
 (20) whether this describes the 5440 product?
 (21) MR. HILL: Object to form.
 (22) THE WITNESS: Repeat the
 (23) question.
 (24) Q. (By Mr. Cordell) The question
 (25) is whether or not from this feature list at

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(1) Fontaine transferred to Fremont. I don't
 (2) know when.
 (3) Q. (By Mr. Cordell) He didn't
 (4) transfer to Tokyo?
 (5) A. No.
 (6) Q. He was always in the U.S. when
 (7) employed by Cirrus?
 (8) A. Right.
 (9) MR. CORDELL: Now I'm afraid I
 (10) need a break.
 (11) VIDEOPHOTOGRAPHER: Off the video
 (12) record 2:57.
 (13)
 (14)
 (15)
 (16)
 (17)
 (18)
 (19)
 (20)
 (21)
 (22)
 (23)
 (24)
 (25) (End of Volume I.).

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(1) 17818 can you tell whether or not this
 (2) corresponds to the 5440 product?
 (3) MR. HILL: Same objection.
 (4) THE WITNESS: This was not the
 (5) 5440. The 5440 did not support LCD.
 (6) Q. (By Mr. Cordell) Are you aware
 (7) of any other product made by Cirrus in
 (8) January of 1994 that would have corresponded
 (9) to this list of functions?
 (10) MR. HILL: Object to form.
 (11) THE WITNESS: Only Nordic.
 (12) Q. (By Mr. Cordell) Only Nordic?
 (13) A. Only Nordic could. I don't know
 (14) if it does meet the spec or not.
 (15) MR. HILL: I caution you not to
 (16) speculate. If you know, tell him.
 (17) Q. (By Mr. Cordell) Are you
 (18) familiar with the Everest product line at
 (19) Cirrus?
 (20) A. Yes. Everest was a 64 bit
 (21) version of Alpine, if I recall.
 (22) Q. So it came later in time?
 (23) A. Yes.
 (24) Q. Jim Fontaine was employed by
 (25) Cirrus in Plano, correct?

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(1) UNITED STATES INTERNATIONAL TRADE COMMISSION
 (2) WASHINGTON, D.C. 20436
 (3)
 (4) BEFORE THE HONORABLE DEBRA MORRISS
 (5) ADMINISTRATIVE LAW JUDGE
 (6) INV. NO. 337-TA-412
 (7)
 (8) IN THE MATTER OF
 (9) CERTAIN VIDEO GRAPHICS DISPLAY
 (10) CONTROLLERS AND PRODUCTS
 (11) CONTAINING SAME
 (12)
 (13)
 (14)
 (15) VIDEOTAPED
 (16) ORAL DEPOSITION
 (17) OF
 (18) ROBERT M. NALLY
 (19) VOLUME II
 (20) November 2, 1998
 (21)
 (22)
 (23)
 (24)
 (25)

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(1) A. Yes.
 (2) Q. Do you know whether or not he
 (3) responded to this, quote, new request from
 (4) IBM shown here on the front page of
 (5) Nally 16?
 (6) MR. HILL: Objection. Calls for
 (7) speculation.
 (8) Q. (By Mr. Cordell) Where was
 (9) Mr. Jow employed?
 (10) A. Fremont.
 (11) Q. So this is an interoffice memo
 (12) between Mr. Jow in Fremont and Mr. Fontaine
 (13) in Plano?
 (14) MR. HILL: Objection. The
 (15) document speaks for itself.
 (16) THE WITNESS: It's addressed to
 (17) Jim Fontaine.
 (18) Q. (By Mr. Cordell) And he was in
 (19) Plano?
 (20) A. Yes.
 (21) Q. What I'm trying to get at here
 (22) is this is a U.S. exchange as opposed to a
 (23) non U.S. exchange?
 (24) MR. HILL: Objection to form.
 (25) THE WITNESS: At some point.

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(1) ANSWERS AND DEPOSITION OF
 (2) ROBERT M. NALLY, produced as a witness
 (3) at the instance of the Respondent,
 (4) ATI Technologies, Inc., taken in the
 (5) above-styled and numbered cause on the 2nd
 (6) day of November, 1998, at 3:18 o'clock p.m.,
 (7) before Sharon Gayle, a Certified Shorthand
 (8) Reporter in and for the State of Texas, at
 (9) the Hyatt Regency Hotel West, located at
 (10) Dallas-Fort Worth International Airport,
 (11) Room 645, County of Dallas, State of Texas.
 (12)
 (13)
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 (15)
 (16)
 (17)
 (18)
 (19)
 (20)
 (21)
 (22)
 (23)
 (24)
 (25)

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APPEARANCES

(1) MR. RUSSELL B. HILL
 (2) MR. SETH E. BROWN
 (3) Morrison & Foerster, L.L.P.
 (4) 425 Market Street
 (5) San Francisco, California 94105-2482

APPEARING FOR THE PETITIONER

(1) MR. RUFFIN B. CORDELL
 (2) MS. LINDA LIU KORDZIEL
 (3) Fish & Richardson, P.C.
 (4) 601 Thirteenth Street N.W.
 (5) Washington, D.C. 20005

APPEARING FOR THE RESPONDENT

(1) Also Present: Mr. Dick Roach, Videographer

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PROCEEDINGS

THE VIDEOGRAPHER: We're on the video record, 3:17, Tape 3.

CONTINUED EXAMINATION

BY MR. CORDELL:

(1) Q. Mr. Nally, we - before the break we were talking about some of your marketing activities with respect to the products at issue here, and I just want to make sure that I'm absolutely crystal clear. Do you recall any meetings with customers during December of 1993? I mean specifically recall a meeting with - December -

(2) A. I can't recall the dates of any meetings with any customers.

(3) Q. And the same would be true for January of 1994?

(4) A. Yes.

(5) Q. You remember that you had some meetings around that time frame, but you can't place when?

(6) A. Right.

(7) Q. Okay. Can you indicate any source of recorded information that might help us pin down when those dates occurred?

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(1) A. Yeah. If you found the airline tickets, the travel - travel vouchers.

(2) Q. That's a good idea. You obviously had to submit your expenses to someone in accounting at Cirrus?

(3) A. Right.

(4) Q. And they reimbursed you for the costs?

(5) A. (Witness nods.)

(6) Q. Maybe even advanced the costs?

(7) A. Reimbursed.

(8) Q. A lot of companies are like that.

(9) MR. CORDELL: Counsel, we would obviously ask that you produce the travel vouchers for, let's say, November, December, January, and February of that relevant time frame.

(10) MR. HILL: Can you give me this in a letter? I'd appreciate that.

(11) MR. CORDELL: Yeah. I've done that request from several of your colleagues, but, you know, given the time that's involved here, don't wait for me to write you a letter. This is one you can write at the top of your list.

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MR. HILL: I'm looking forward to hearing from you, though.

Q. (By Mr. Cordell) Mr. Nally, when you went to Japan, you obviously had to have a passport, correct?

A. Yes.

Q. Do you still have that passport?

A. It's being renewed.

Q. Do you have the old one?

A. Don't you have to surrender those?

Q. Yeah. Usually they'll punch a big hole in it and hand it back to you.

A. I don't know.

Q. Would you mind checking?

A. I will check.

Q. And if you do, can you give it to

Mr. Hill and he'll give it to me?

A. Okay.

Q. That may help us pin down when you

went to Japan, for example. Do you recall

whether or not you obtained a visa to go to

Japan?

A. You do not need a visa, do you? I

can't -

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Q. It depends on what you're doing, I think.

A. I can't remember. I've been to Japan several times. I can't remember ever having to have a visa.

Q. Well, development on the Alpine CDX proceeded through the spring of 1994, correct?

A. If my timing - I mean, if my years are lined up right.

Q. Okay. Well, we certainly have

a -

A. Yeah.

Q. - specification from January and then March of 1994 in Nally 8 and -

A. Right.

Q. - 10, correct?

A. Yes.

Q. Do you recall when the

nomenclature changed from Alpine CDX to 5440?

A. No, I do not.

Q. At some point in the summer of

1994, Cirrus began working on the patent that ultimately became the 525 patent, correct?

A. I can't say if it was summer or

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fall or winter. I'm not sure exactly when.

Q. Was there a committee at Cirrus

that was in charge of handling patent matters?

A. I guess.

Q. Okay. Well, let me just ask you

this: What do you know about the patent process at Cirrus in 1994?

A. I submitted proposals to my boss

and he'd okay them or didn't okay them.

Q. Who was your boss in 1993 at

Cirrus?

A. John Norsworthy. I think I was

still working for John. It's either John

Norsworthy or Joe - or Joe Winegger. At some

point in there I changed from one to the

other.

Q. What was Mr. Norsworthy's title in

1993?

A. VP of engineering.

Q. And what about Mr. Winegger?

A. I think he was director of

marketing.

Q. So your primary function shifted

from more of an engineering focus to more of a

marketing focus?

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(1) A. Yes.
 (2) Q. And that was sometime in the
 (3) 1993-94 time frame?
 (4) A. I'm not exactly sure what year it
 (5) was. It could have been as early as '92. I
 (6) don't know.
 (7) Q. Well, you certainly did the
 (8) initial specification for the 5440, correct?
 (9) A. Yes.
 (10) Q. And that was in the fall of '93?
 (11) A. Finished in the fall of '93.
 (12) Q. Do you recall when you started
 (13) that project?
 (14) A. (Witness shakes head.)
 (15) Q. So the process that existed in
 (16) 1994 at Cirrus with respect to patents is that
 (17) you created a proposal and you gave it to your
 (18) boss, and he decided whether or not it was
 (19) worth patenting?
 (20) A. Yes.
 (21) Q. Do you recall creating a specific
 (22) written document for that purpose with respect
 (23) to what became the 525 patent?
 (24) A. Really it was a write-up that was
 (25) given to the lawyer that became the patent

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(1) application.
 (2) Q. And was this write-up something
 (3) different from all the exhibits that we have
 (4) marked before you?
 (5) A. I don't really -- I can't recall
 (6) on this one. I could have -- I can't recall.
 (7) I don't want to speculate.
 (8) Q. But you recall giving some written
 (9) document that was ultimately used as the basis
 (10) for the application?
 (11) A. Yes.
 (12) Q. And you gave this to your boss?
 (13) A. Yes.
 (14) Q. Now, do you recall the first time
 (15) you became aware that a formal patent
 (16) application process was underway?
 (17) A. Is there one? Oh, oh, oh, the
 (18) formal -- this patent was formally --
 (19) Q. When did you find out that the
 (20) company was going to move forward for the
 (21) patent?
 (22) A. When? I can't give you a date.
 (23) Q. Okay. Sometime in 1994?
 (24) A. The patent was issued in when?
 (25) Q. Well, the patent was filed in

Page 207

(1) January of 1995.
 (2) A. Yeah. It would -- it was in '94,
 (3) sometime in '94.
 (4) Q. Do you recall meeting with the
 (5) patent lawyer that wrote the patent
 (6) application?
 (7) A. Yes.
 (8) Q. Mr. Murphy? --
 (9) A. Yes.
 (10) Q. And was that after you had
 (11) provided him with the -- or that someone had
 (12) provided him with the written write-up of the
 (13) application?
 (14) A. If I recall, I presented that to
 (15) him on our first meeting.
 (16) Q. Okay. And you walked him through
 (17) the technology and told him how it worked?
 (18) A. Yeah.
 (19) Q. Pretty standard patent process?
 (20) A. (Witness nods.)
 (21) Q. Is that a yes?
 (22) A. Yes.
 (23) Q. The reporter will smack me if we
 (24) don't speak out loud.
 (25) The -- do you recall who did the

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(1) drawings for the patent?
 (2) A. The final drawing was done by the
 (3) law firm. I ain't sure what documents they
 (4) worked from.
 (5) Q. Well, do you recall handing him
 (6) any drawings?
 (7) A. Yes.
 (8) Q. Okay. What kinds of drawings did
 (9) you give him?
 (10) A. Basically block diagrams very
 (11) similar to the ones he produced. I ain't
 (12) going to say they're identical, but I'll say
 (13) that what they produced was -- came from what
 (14) I gave him.
 (15) Q. So you met with Mr. Murphy. You
 (16) gave him some material. He disappeared for a
 (17) while and then showed up again. Did you have
 (18) another meeting?
 (19) A. Two or three.
 (20) Q. Okay. Do you recall when the
 (21) second one was?
 (22) A. (Witness shakes head.)
 (23) Q. How about the third one?
 (24) A. No, I can't.
 (25) Q. And can you think of anything that

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(1) would help us pin down when these meetings
 (2) took place?
 (3) A. No.
 (4) Q. Mr. Murphy came back with a draft
 (5) application. Did he ask you to review it?
 (6) MR. HILL: I'm going to object to
 (7) the extent it calls for attorney-client
 (8) privileged information.
 (9) But you shouldn't reveal the
 (10) contents of communications between you and
 (11) Mr. Murphy --
 (12) THE WITNESS: Okay.
 (13) MR. HILL: -- but you can
 (14) certainly say whether you're aware of certain
 (15) facts or not.
 (16) THE WITNESS: Okay.
 (17) MR. CORDELL: I don't really know
 (18) where that goes.
 (19) Q. (By Mr. Cordell) Did he ask you
 (20) to review a draft application?
 (21) MR. HILL: Same objection, but
 (22) this doesn't constitute a waiver. He can
 (23) answer the question.
 (24) A. Yes, there was a review process.
 (25) I reviewed.

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(1) Q. (By Mr. Cordell) Did you revise
 (2) the application?
 (3) A. Yes.
 (4) Q. Did you correct technical problems
 (5) with the application, for example?
 (6) A. Yes.
 (7) Q. Or he said the color look-up table
 (8) sat in front of the frame buffer, and you put
 (9) it behind it? That kind of thing?
 (10) A. Yeah. To make the language
 (11) clearer to me to understand it.
 (12) Q. Okay. Do you recall whether or
 (13) not Mr. Murphy, on the occasion of the second
 (14) meeting, had attempted to write claims for the
 (15) application?
 (16) A. I can't recall.
 (17) Q. Do you know what claims are?
 (18) A. Yes.
 (19) Q. Well, did, at any time, anyone ask
 (20) you to write claims for the 525 patent?
 (21) MR. HILL: Same objection.
 (22) I instruct you not to answer in a
 (23) way that would reveal the contents of
 (24) communications.
 (25) A. I better not answer.

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(1) Q. (By Mr. Cordell) Well, I'm not
 (2) asking for the contents. I just want to know
 (3) whether or not you wrote claims for the 525
 (4) patent.
 (5) MR. HILL: You can answer that.
 (6) A. I did not write claims.
 (7) Q. (By Mr. Cordell) So ultimately
 (8) you got hold of a final version of the
 (9) application, I take it, and reviewed it one
 (10) last time?
 (11) MR. HILL: I'll object to form.
 (12) Q. (By Mr. Cordell) Is that
 (13) accurate?
 (14) A. Yes.
 (15) Q. And then that was filed?
 (16) A. I cannot recall if I was still
 (17) employed at Cirrus when I reviewed the final
 (18) patent.
 (19) MR. CORDELL: Okay. Let me -- let
 (20) me go ahead and have marked as Nally 17 a
 (21) rather thick document that I will represent is
 (22) what I believe to be the contents of the file
 (23) wrapper of the 525 patent.
 (24) (Deposition Exhibit 17
 (25) was marked.)

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(1) Q. (By Mr. Cordell) Mr. Nally, I'll
 (2) hand you what we've marked as Exhibit 17 and
 (3) ask you whether or not you've ever seen this
 (4) before.
 (5) A. I can't say I've seen it all; but,
 (6) yes, this is -- contains the patent. I ain't
 (7) sure what all is in here, though.
 (8) Q. Let's turn through the document,
 (9) if we may. And do you see that the pages are,
 (10) at least in the initial section, are numbered
 (11) in the lower left-hand corner?
 (12) A. Which numbers are you referring
 (13) to?
 (14) Q. Well, they're handwritten. You
 (15) have to turn back into the document a little
 (16) bit.
 (17) A. Oh, okay. Turn back into the
 (18) document? How far back?
 (19) Q. I don't know. Four or five
 (20) pages.
 (21) A. Okay. I see a 2, 3, 4, 5, 6.
 (22) Q. You're talking about those.
 (23) Q. Looking at Pages 1 through 31 --
 (24) MR. HILL: It doesn't have a 1.
 (25) MR. CORDELL: Yeah. It looks like

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(1) they skipped 1, but it does begin with 2.
 (2) Q. (By Mr. Cordell) Does this look
 (3) like the application that you finally reviewed
 (4) before filing with respect to the 525 patent?
 (5) A. It appears to be.
 (6) Q. Okay. Beginning at Page 32,
 (7) you'll see that there are a number of claims
 (8) written there.
 (9) A. Okay.
 (10) Q. Do you recall reviewing these
 (11) prior to filing?
 (12) A. Yes.
 (13) Q. And I believe you said that you
 (14) didn't write the claims, but did you have any
 (15) input into the content of the claims?
 (16) MR. HILL: Again, I'm going to
 (17) caution the witness not to reveal
 (18) attorney-client privileged information.
 (19) A. I really can't recall if they were
 (20) intact or not.
 (21) Q. (By Mr. Cordell) Turn to Tab 2 in
 (22) the document.
 (23) A. Okay. I'm at Tab 2.
 (24) Q. Were you aware that a preliminary
 (25) amendment was filed in this application?

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(1) A. A preliminary what?
 (2) Q. Amendment. Do you know what a
 (3) preliminary amendment is?
 (4) A. No.
 (5) Q. Do you know who within Cirrus was
 (6) the primary contact for this patent
 (7) application?
 (8) A. I was.
 (9) Q. Do you recall whether or not you
 (10) were informed that you would be filing a
 (11) preliminary amendment in this case?
 (12) MR. HILL: First, he said he
 (13) doesn't know what a preliminary amendment is.
 (14) Maybe you could clear that up.
 (15) MR. CORDELL: Well, good point.
 (16) Q. (By Mr. Cordell) My question is:
 (17) Well, have you ever seen this before, this
 (18) preliminary amendment?
 (19) A. I can't recall. It's possible.
 (20) Q. Okay. Turn to the page that has a
 (21) 45 written in the lower left-hand portion.
 (22) A. Forty-five?
 (23) Q. Forty-five.
 (24) A. Yeah.
 (25) Q. Do you see the claim numbered 37?

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(1) A. Forty-five? Oh, I'm on 48. The
 (2) eight looks like a five. I'm sorry.
 (3) Q. That's all right.
 (4) A. Claim 37? Okay.
 (5) Q. Can you read that claim to
 (6) yourself, please?
 (7) A. Out loud?
 (8) Q. No.
 (9) A. Okay.
 (10) Q. Do you see the term in the second
 (11) line -- the second or maybe third line of the
 (12) claim, multifORMAT frame buffer?
 (13) A. Yes.
 (14) Q. Can you give us your understanding
 (15) of what that term means?
 (16) MR. HILL: I'm just going to make
 (17) an objection to the extent it calls for a
 (18) legal conclusion or expert testimony.
 (19) But you can certainly give your
 (20) understanding of that term.
 (21) THE WITNESS: Okay.
 (22) A. It's a term that I coined. And
 (23) when I coined it, what I meant to is -- it's a
 (24) frame buffer that can store data in the frame
 (25) buffer in its native format and send it to the

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(1) display in its native format.
 (2) Q. (By Mr. Cordell) Does it require
 (3) any particular organization of the data within
 (4) the frame buffer?
 (5) A. Meaning?
 (6) Q. Do you have to have an on-screen
 (7) and an off-screen portion of the frame buffer?
 (8) A. It depends on the type of data.
 (9) Q. Well, I'm really looking for what
 (10) you understand the term "multiformat frame
 (11) buffer" to mean.
 (12) A. Well, multiformat data can be
 (13) on-screen or off-screen. Multiformat tells
 (14) you how it is sent to the display.
 (15) Q. So really the term "multiformat
 (16) frame buffer" doesn't have anything
 (17) particularly to do with on-screen or
 (18) off-screen?
 (19) MR. HILL: Again, this is your
 (20) understanding.
 (21) THE WITNESS: Yes.
 (22) MR. HILL: -- of the term, and
 (23) it's not a legal conclusion or an opinion of
 (24) an expert.
 (25) Q. (By Mr. Cordell) Is that right?

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(1) A. My opinion, yes.
 (2) Q. (By Mr. Cordell) Well, so isn't
 (3) it a little redundant then to continue on
 (4) and say multiformat frame buffer for
 (5) simultaneously storing graphics and video
 (6) data? Doesn't your definition of multiformat
 (7) frame buffer include graphics and video data?
 (8) MR. HILL: Counsel, can I just
 (9) have a standing objection on the legal
 (10) conclusion grounds?
 (11) MR. CORDELL: Please.
 (12) MR. HILL: When we're talking
 (13) about the terms out of the plans -
 (14) THE WITNESS: Yeah.
 (15) MR. HILL: - that's what I'm
 (16) objecting to.
 (17) THE WITNESS: Okay.
 (18) MR. HILL: Okay.
 (19) A. To me - I don't understand where
 (20) you're - you're trying to take me to -
 (21) Q. (By Mr. Cordell) No, I'm not
 (22) trying to be anything except clear. So if I'm
 (23) not being clear, please - please let me
 (24) know.
 (25) I thought you said that a

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(1) multiformat frame buffer was something that
 (2) had - that had different types of data in its
 (3) native format?
 (4) A. Right.
 (5) Q. But then the claim goes on to say
 (6) for simultaneously storing graphics and video
 (7) data. Well, let me ask it this way: What is
 (8) your understanding of the term "simultaneously"
 (9) storing graphics and video data?"
 (10) A. Exactly what it means is the frame
 (11) buffer has - what's in the frame buffer is
 (12) graphics data that can be displayed and video
 (13) data that can be displayed simultaneously.
 (14) That's where the word simultaneously comes
 (15) from.
 (16) Q. Okay. Do you mean the act of
 (17) storing, or do you mean the - there is held
 (18) within the display buffer?
 (19) A. No, I mean, you're - you're
 (20) splitting hairs on me here.
 (21) Q. Well, I'm afraid that's - that's
 (22) what patent lawyers do, man.
 (23) MR. HILL: I'm going to object to
 (24) the form of that question.
 (25) Q. (By Mr. Cordell) Well, I just

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(1) want to know: Is storing a verb there?
 (2) A. Okay. You can - you can store in
 (3) memory video data and graphics data at the
 (4) same time. Okay?
 (5) Q. Fair enough.
 (6) Now, Mr. Nally, earlier today I
 (7) believe you said you were familiar with a -
 (8) actually, let's come back to that. Strike
 (9) that.
 (10) Can you give me your understanding
 (11) of what a first pipeline for processing words
 (12) of graphics and data selectively retrieved
 (13) from said frame buffer is?
 (14) A. That's a pipeline that takes the
 (15) data through a FIFO'ing mechanism, through a
 (16) serializing mechanism, through a color look-up
 (17) table if it's not true color, okay, and puts
 (18) it on the screen according to the clocking
 (19) mechanism of the syncs and the clock - and
 (20) the display clock.
 (21) Q. Do I have to have a serializer in
 (22) order to constitute a graphics pipeline?
 (23) MR. HILL: Object to form.
 (24) A. Once again, it depends on your
 (25) implementation.

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(1) Q. (By Mr. Cordell) So, I mean, it
 (2) is certainly conceivable that you'd have a
 (3) graphics pipeline without a serializer?
 (4) A. Depends on what you're doing.
 (5) Q. It kind of depends on how you
 (6) structure your memory?
 (7) A. Yeah.
 (8) Q. Can you tell me what your
 (9) understanding is of a second pipeline for
 (10) processing words of video data selectively
 (11) retrieved from said frame buffer?
 (12) A. It is pipeline that has a FIFO,
 (13) an interpolation engine, a color conversion
 (14) engine, and - did I say color conversion?
 (15) Okay. That would constitute the second
 (16) pipeline and the rastering controls to tell
 (17) you where the pixel is on the screen.
 (18) Q. Well, I don't see anything written
 (19) there that relates to how the data is
 (20) displayed. Do you?
 (21) A. No.
 (22) Q. This - this claim is pretty
 (23) simple, right? I mean, it's basically a
 (24) multiformat frame buffer, a first pipeline,
 (25) and a second pipeline, correct? What you do

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(1) with it after the pipeline is kind of up to
 (2) you. Is that fair?
 (3) A. I guess you can look at it that
 (4) way.
 (5) Q. Well, I mean, reading Claim 37, as
 (6) someone who's been active in this industry --
 (7) A. Okay.
 (8) Q. - for a long time, are you aware
 (9) of systems that would be described by
 (10) Claim 37?
 (11) A. Meaning, is this - I guess it all
 (12) depends on what your definition of a pipeline
 (13) is.
 (14) Q. Okay. Well, earlier today you
 (15) said that you were familiar with the Siann
 (16) patent. And we've marked that as Nally 3.
 (17) A. Okay.
 (18) Q. Doesn't the Siann patent have the
 (19) graphics pipeline?
 (20) MR. HILL: Again, we object there
 (21) that that was also calling for a legal
 (22) conclusion.
 (23) A. Three? Where is 3? Now, the
 (24) question is?
 (25) Q. (By Mr. Cordell) Does the Siann

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(1) patent have a graphics pipeline?
 (2) MR. HILL: The same objections.
 (3) A. Oh, does it have a graphics
 (4) pipeline?
 (5) Q. (By Mr. Cordell) Yes.
 (6) MR. HILL: And Mr. Nally didn't
 (7) have time to fully digest that.
 (8) So you shouldn't speculate.
 (9) A. I won't speculate. I'll just say
 (10) I don't see it.
 (11) Q. (By Mr. Cordell) You do not see a
 (12) graphics pipeline in the -
 (13) A. Not from what I'm looking at.
 (14) Q. Okay. Let me direct your
 (15) attention to the elements 84, delay stage; and
 (16) 86, pixel formatter.
 (17) A. Uh-huh.
 (18) Q. Do those not constitute a graphics
 (19) pipeline?
 (20) A. No. Where is the color look-up
 (21) table? Where is the windowing mechanism,
 (22) their CRT controller? Where is the
 (23) serializer? It's - it's not a pipeline.
 (24) Q. So it is your testimony then that
 (25) a pipeline has to include each of the elements

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(1) you just described?
 (2) A. Yes.
 (3) Q. If I'm missing a serializer, then
 (4) I have no pipeline?
 (5) A. Well, like I said, it depends on
 (6) your implementation. There are certain things
 (7) that have got to be there, like a CRT
 (8) controller, okay, which is a rastering
 (9) mechanism. That has to be there.
 (10) If you're taking data from a
 (11) one pixel at a time, you don't need a
 (12) serializer. But, then again, you can't do too
 (13) much because you don't have the memory
 (14) bandwidth. So in practice - in theory, you
 (15) say yes; but in practice, it doesn't make
 (16) sense. Do you follow what I'm saying?
 (17) Q. Well, tell me this: Does the
 (18) Siam patent of Exhibit 3 have a multiformat
 (19) frame buffer?
 (20) A. In my opinion, no.
 (21) Q. Why is that?
 (22) A. Because you cannot pull the video
 (23) data and the graphics data from the same frame
 (24) buffer.
 (25) Q. Well, let's -- let's just spend a

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(1) little time on this, if we can. I'd like you
 (2) to turn back to Column 9 in Exhibit 3.
 (3) A. Column 9.
 (4) MR. HILL: Again, Mr. Nally, when
 (5) we're talking about this patent, let me
 (6) caution you not to speculate.
 (7) A. Column 9?
 (8) Q. (By Mr. Cordell) Right.
 (9) A. Okay.
 (10) Q. Do you see the second sentence
 (11) that reads: It provides high resolution video
 (12) and graphics information in a single display
 (13) memory 52?
 (14) A. I see that.
 (15) Q. Mr. Nally, does that not suggest
 (16) to you that there are - there is stored both
 (17) video and graphics information within a single
 (18) display memory in the Siam patent of
 (19) Exhibit 3?
 (20) MR. HILL: I object to form.
 (21) A. To answer that question, I would
 (22) have to say: What does the dotted line mean?
 (23) Q. (By Mr. Cordell) And the dotted
 (24) line you're referring to is across the display
 (25) memory?

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(1) A. Yes.
 (2) Q. Would you have any reason to
 (3) dispute the sentence I just read to you?
 (4) A. Yes. The reason I dispute that is
 (5) because this suggests to me what I call a
 (6) split frame buffer.
 (7) Q. How do you define a split frame
 (8) buffer?
 (9) A. It's means you've got different
 (10) addressing mechanisms in both portions of the
 (11) memory. Even though it is a single memory,
 (12) you've got two sets of addresses, two sets of
 (13) data. You've got one controller controlling
 (14) two frame buffers, is basically what it means.
 (15) Q. But wouldn't that imply then that
 (16) the size of the respective frame buffers are
 (17) independent of one another?
 (18) MR. HILL: I'll object to form.
 (19) A. Which frame buffers?
 (20) Q. (By Mr. Cordell) Well, I think
 (21) you just said that you were -
 (22) A. You're talking about the two here
 (23) (indicating).
 (24) Q. You were concerned about whether
 (25) the display memory 52 was actually a single

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(1) frame buffer, correct?
 (2) A. Yes.
 (3) MR. HILL: Objection.
 (4) Mischaracterized prior testimony.
 (5) MR. CORDELL: No. I think the
 (6) witness disagrees with you, Counsel.
 (7) Q. (By Mr. Cordell) Let me -
 (8) A. I didn't - I didn't understand
 (9) the -
 (10) MR. HILL: I made an objection.
 (11) Q. (By Mr. Cordell) Let me direct
 (12) your attention to Lines 35 through 42 in
 (13) Column 9.
 (14) A. Thirty-five through -
 (15) Q. Forty-two. If you look down the
 (16) middle of the patent, you'll see there's some
 (17) little numbers there.
 (18) A. Column - Column 9?
 (19) Q. Column 9.
 (20) A. Thirty-five to - okay.
 (21) Q. And so what we have here is a
 (22) display memory where approximately 750 K is
 (23) devoted to the graphics portion of the
 (24) display, correct?
 (25) A. That's what it says.

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(1) Q. And then the remainder is
 (2) allocated to the video windows, correct?
 (3) A. (Witness nods.)
 (4) Q. So isn't it, in fact, a single
 (5) frame buffer?
 (6) MR. HILL: Asked and answered.
 (7) A. Knowing the implementation, the
 (8) way it was implemented, I would have to say
 (9) because it was done with VRAM, they had -
 (10) what they did is that they took one of those
 (11) frame buffers and ran it through the
 (12) I/O port. The other they ran through the
 (13) serial port.
 (14) Q. (By Mr. Cordell) So what you're
 (15) saying is that because you have additional
 (16) knowledge of the Brooktree 885 part, you
 (17) interpret this passage differently?
 (18) MR. HILL: Objection.
 (19) Mischaracterizes testimony.
 (20) A. Let's say it this way: At the
 (21) time that product was out, I knew that the
 (22) only way they could do that was the VRAM.
 (23) Q. (By Mr. Cordell) So when you read
 (24) the passage here in Column 9 -
 (25) A. I - I was looking at it at the

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(1) time of the technology being used.
 (2) Q. And your specific knowledge of the
 (3) Brooktree part is that they used VRAM -
 (4) A. Right.
 (5) Q. - so you interpret Column 9 as
 (6) discussing the VRAM?
 (7) A. Right.
 (8) Q. Okay. But there's no designation
 (9) of VRAM in this patent, is there?
 (10) A. No.
 (11) Q. Going back now to Nally 17 -
 (12) A. Is that this one (indicating)?
 (13) Okay.
 (14) Q. Yes.
 (15) Can you tell me what your
 (16) understanding is of the phrase "circuitry for
 (17) selectively retrieving data"?
 (18) MR. HILL: Same objection as
 (19) before, related to legal conclusions.
 (20) A. This is the lawyer's wording.
 (21) It's how you get data out of memory. That's
 (22) the best I can say.
 (23) Q. (By Mr. Cordell) That's part of
 (24) the -
 (25) A. I'm not real good at splitting

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(1) words.
 (2) Q. I have trouble with that myself.
 (3) A. Okay.
 (4) Q. Now, can you turn to Tab 3 in
 (5) Exhibit 17?
 (6) A. (Witness complies.)
 (7) Q. Do you recall an effort sometime
 (8) in the first quarter probably through
 (9) April 1995 to secure the 525 patent sooner
 (10) than might otherwise be available from the
 (11) patent office?
 (12) A. Yes.
 (13) Q. Okay. Can you describe the
 (14) circumstances of that effort?
 (15) MR. HILL: Objection. It calls
 (16) for a narrative.
 (17) But you can answer.
 (18) A. Okay. That led up to that or
 (19) what?
 (20) Q. (By Mr. Cordell) Yes.
 (21) A. I was at a trade show and a
 (22) technical officer from a competing company
 (23) came up to me and informed me that he had seen
 (24) my specification and said, Good work. And I
 (25) knew it was impossible for him to have that —

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(1) him. It could have been somebody who was
 (2) working at Cirrus Logic whose spouse is
 (3) working at the other one. It could have been
 (4) a number of ways.
 (5) Q. Can you review Nally 8?
 (6) A. Do I have it?
 (7) Q. I hope so.
 (8) A. You've got so much paper here in
 (9) front of me, it's beginning to look like my
 (10) desk.
 (11) Q. Mine looks the same way.
 (12) All right. Can you tell us
 (13) whether or not this exhibit was ever shared
 (14) with customers?
 (15) A. No, I cannot.
 (16) Q. Do you know who might know that?
 (17) A. Maybe Jim Fontaine.
 (18) Q. Is this the kind of thing that you
 (19) might show to customers?
 (20) MR. HILL: Object to form.
 (21) A. I don't think so.
 (22) MR. CORDELL: I apologize. When I
 (23) talk too much, it makes me cough.
 (24) A. When you say "you," do you mean
 (25) me, or do you mean Cirrus Logic?

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(1) none of that information was in public domain
 (2) at that time.
 (3) Q. Who was the — who was the person
 (4) in question?
 (5) A. I can't remember his name. Chief
 (6) technical officer at the time.
 (7) Q. For what company?
 (8) A. Of Trident.
 (9) Q. Was this the spring COMDEX?
 (10) A. I can't recall exactly which one
 (11) it was, but it was at a show. I can't
 (12) remember what show it was.
 (13) Q. But you were able to ascertain
 (14) what specification he was talking about?
 (15) A. He — he said the Alpine AB spec.
 (16) That's the best of my memory. This is a long
 (17) time ago, but I knew what he was talking
 (18) about.
 (19) Q. Is it any of the specs that we've
 (20) marked in front of you?
 (21) A. It could be Item Number 4. This
 (22) Item 4 (indicating).
 (23) Q. Exhibit 4?
 (24) A. Yeah, yeah. It could have been
 (25) this.

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(1) Q. (By Mr. Cordell) Well, Cirrus.
 (2) A. Oh, I can't answer. I mean —
 (3) Q. The real question is: Is the
 (4) exhibit of Nally 8 used for marketing
 (5) purposes, or documents like Nally 8?
 (6) A. That's not its intention.
 (7) Q. Well, I guess anything is
 (8) possible?
 (9) A. Yeah.
 (10) Q. Now, do you recall specifically
 (11) what the CTO of Trident said to you?
 (12) A. For word, no. It was a short
 (13) conversation. I was waiting for a cab, he was
 (14) getting in a car, or I was getting in a car
 (15) and he was waiting — I forgot what it was,
 (16) but it was a brief exchange. The conversation
 (17) lasted less than a minute. I think he was
 (18) just digging into me because he tried to get
 (19) me to go to work for him sometime earlier.
 (20) Q. And what did you do in response to
 (21) this news?
 (22) A. I alerted my management.
 (23) Q. Which one?
 (24) A. Jim Fontaine, if I recall. I
 (25) can't be absolutely sure if it was Jim or

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(1) Q. Well, do you recall ever
 (2) distributing the document we've marked as
 (3) Exhibit 4 to customers?
 (4) A. No. That — that document was
 (5) never intended to go to customers.
 (6) Q. Well, certainly that may not have
 (7) been your intention, but are you aware that
 (8) Cirrus ever showed it to customers?
 (9) A. No.
 (10) Q. Do you have any idea how this
 (11) gentleman from Trident would have obtained
 (12) possession of — of the exhibit?
 (13) A. I can only speculate.
 (14) Q. Well, calling it speculation, tell
 (15) me what you think.
 (16) A. About all I —
 (17) MR. HILL: Objection. Calls for
 (18) speculation.
 (19) MR. CORDELL: Wow, I was afraid
 (20) you wouldn't catch that one.
 (21) A. There could be a number of ways.
 (22) Q. (By Mr. Cordell) Well, what do
 (23) you think?
 (24) A. It could be a former employee
 (25) leaving Cirrus Logic could have taken it with

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(1) somebody else, but it — it seemed like Jim
 (2) was the guy I would have gone to first.
 (3) Q. What happened next?
 (4) A. I guess through some process the
 (5) decision was made to try to expedite.
 (6) Q. Do you recall who made that
 (7) decision?
 (8) A. I don't know who it was — who
 (9) would make that decision. You can just assume
 (10) it was kind of high up in the company.
 (11) Q. But suffice it to say the decision
 (12) was made and you got a call from the lawyers
 (13) to talk about the expedite process?
 (14) A. I can't remember exactly the
 (15) process we went through. No.
 (16) Q. Turn a few pages back under Tab 3
 (17) and you'll find a Declaration of Robert M.
 (18) Nally.
 (19) A. Yeah. Okay.
 (20) Q. Do you recall this declaration?
 (21) A. I recall writing one. I —
 (22) this — where is the declaration? Okay.
 (23) Okay. Yes. I — I have no reason to assume
 (24) that anybody changed this declaration. I did
 (25) write a declaration. I can't remember exactly

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(1) what I wrote.
 (2) Q. Let me direct your attention to
 (3) Page 4.
 (4) A. Okay.
 (5) Q. And is that your signature that
 (6) appears at the bottom there?
 (7) A. Yes.
 (8) Q. Look at the footer information in
 (9) the lower left-hand corner of the page. Do
 (10) you recognize that as indicative of a network
 (11) at Pixel or Cirrus?
 (12) A. No. What do you mean? This code
 (13) down here, the DA9508?
 (14) Q. Yes.
 (15) A. One thing I recognize is the O20,
 (16) and I think that was the internal control for
 (17) this document, the patent.
 (18) Q. So that was the docket number for
 (19) this patent? You'll see it again at the top
 (20) of the page, 10726-PO20US.
 (21) A. On the top of the page? Yeah.
 (22) That's what you call it. That's how we
 (23) tracked it inside the company.
 (24) Q. Okay. That was Cirrus' number,
 (25) not the lawyer's number?

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(1) A. I don't know whose it was.
 (2) Q. Well, but I mean does the footer
 (3) tell you whether you wrote this, or did the
 (4) lawyers write it?
 (5) A. It doesn't tell me.
 (6) Q. I mean, can you take a few moments
 (7) and review the --
 (8) A. Yeah.
 (9) Q. -- declaration and tell us whether
 (10) it refreshes your recollection as to whether
 (11) you wrote it or maybe the lawyers prepared a
 (12) draft and you reviewed it and signed it?
 (13) A. Okay. I see -- okay. I'm fairly
 (14) confident that I wrote this because it's got
 (15) my wording in it.
 (16) Q. Okay.
 (17) A. But I can't -- it's a long time
 (18) ago.
 (19) Q. Okay.
 (20) A. I can't remember writing some -- a
 (21) lot of this stuff I see in front of me.
 (22) Q. I'd like to ask you to look at
 (23) Paragraph 3 in the first page of the
 (24) declaration.
 (25) A. Yeah.

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(1) Q. You say in the second sentence:
 (2) Along these lines, I designed a VGA controller
 (3) with dual data paths from a single frame
 (4) buffer into the CRT refresh controls.
 (5) Do you see that?
 (6) A. Yes.
 (7) Q. One data path was for video data
 (8) 16-bit YUV422. The other was for 8-bit CLUT
 (9) data.
 (10) Do you see that?
 (11) A. Yes.
 (12) Q. And then you -- you relate that
 (13) this design became the subject of Application
 (14) Serial Number 08/376,919, correct?
 (15) A. Uh-huh.
 (16) Q. And that relates to the patent
 (17) application that resulted in the 525 patent,
 (18) right? Is that correct?
 (19) A. I'm assuming that these numbers
 (20) match those numbers. Yeah.
 (21) Q. Oh, yeah. You can look at the top
 (22) of the page --
 (23) A. Okay.
 (24) Q. -- I think, if that helps you.
 (25) A. Okay.

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(1) Q. And then there's a sentence that
 (2) reads: The application was prepared and the
 (3) claims drafted to cover a device which was the
 (4) subject of Cirrus Logic's Private
 (5) Specification "Functional Specifications
 (6) Alpine CDX," a copy of which -- dates
 (7) removed -- is attached hereto as Exhibit A.
 (8) Do you see that?
 (9) A. Uh-huh.
 (10) Q. Now, can you look back and find
 (11) Exhibit A?
 (12) A. Okay.
 (13) Q. Now, first of all, you identified
 (14) this as the Alpine CDX, correct?
 (15) A. Yes.
 (16) Q. Now, was that representation to
 (17) the patent office in April of 1995 correct?
 (18) Is the attachment here actually the Alpine
 (19) CDX?
 (20) A. If I stated that, that's what we
 (21) was calling it at the time.
 (22) Q. Now, I have a little bit of a
 (23) problem in that the attachment that I see here
 (24) at Exhibit A --
 (25) A. Uh-huh.

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(1) Q. -- sort of loosely matches what
 (2) we've marked as Nally 4 --
 (3) A. Okay.
 (4) Q. -- except that Nally 4 appears to
 (5) end at Page 4 --
 (6) A. Yes.
 (7) Q. -- and is formatted a bit
 (8) differently. Do you know where the remainder
 (9) of Nally 4 is, or can you explain the
 (10) discrepancy between the Attachment A and the
 (11) memo of Nally 4?
 (12) MR. HILL: Object to form.
 (13) A. I can only speculate.
 (14) Q. (By Mr. Cordell) Well, what's
 (15) your speculation?
 (16) MR. HILL: Objection. Calls for
 (17) speculation.
 (18) A. Page 5 is the VAFC overlay
 (19) mentioned on Page 1 of 4. Okay. Okay.
 (20) What's missing seems to be the VAFC interface.
 (21) Q. (By Mr. Cordell) Okay.
 (22) A. And the VAFC interface was a known
 (23) interface, so it probably didn't need to be a
 (24) part of this document because this was a
 (25) proposal document. This is actually spelling

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(1) out how you would do something that is already
 (2) well known.
 (3) Q. Well, but you told the patent
 (4) office that this was the document that you
 (5) based the application on. Was that accurate?
 (6) A. Yes.
 (7) Q. So, I mean, it's your testimony
 (8) that the VAFC interface features were
 (9) sufficiently well known that you didn't need
 (10) to set them forth in the exhibit of Nally 4?
 (11) A. Right.
 (12) Q. That anybody who worked in this
 (13) business would know how to implement a VAFC
 (14) port?
 (15) A. All you had to do was go to the
 (16) VESA committee and get it.
 (17) Q. There was nothing special in the
 (18) VAFC port?
 (19) A. No.
 (20) Q. Flipping over to Paragraph 5 --
 (21) well, actually before we get there, the VAFC
 (22) port is the so-called live video port,
 (23) correct?
 (24) A. Yes.
 (25) Q. Flipping over to Paragraph 5 --

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(1) A. Paragraph 5 of?
 (2) Q. Of - I'm sorry - Nally 17, your
 (3) declaration.
 (4) A. Paragraph -
 (5) Q. It's behind Tab 3.
 (6) A. Okay. Paragraph - okay.
 Paragraph 5. Okay.
 Q. In that paragraph you relate the
 details of your meeting with the chief
 technical officer of Trident, correct?
 A. Yes.
 Q. Who was the other employee you
 reference about halfway through the paragraph?
 A. It could have been Dennis Jow.
 MR. HILL: Don't speculate. If
 you know, you know.
 A. I'm just - all I can do is give
 you a list of people it could have been.
 Q. (By Mr. Cordell) Okay.
 A. That's all I can say. It could
 have been Dennis Jow. It could have been -
 boy, give me a - give me a Cirrus Logic
 employee list because I - you want all the
 names that it could possibly have been?
 Q. Well, I mean, if you can -

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A. I cannot remember who all was
 there.
 Q. Okay. I mean, it's not -
 A. I can tell you who it wasn't.
 Q. Okay. That's probably okay.
 Let's - let's move down to
 Paragraph 6. You say: The competitor in
 question came to market with a graphics
 controller that attempted to address the same
 market.
 A. What paragraph?
 Q. Paragraph 6.
 A. Okay. What was the question?
 Q. Well, the question is: Well, you
 say that they came - they tried to address
 the same market but -
 A. Yeah.
 Q. - were ineffective?
 A. Yes.
 Q. Then you say that they obtained
 Cirrus Logic's "Functional Specification for
 Alpine CDX" -
 A. Uh-huh.
 Q. - and then redesigned their
 product to add the same functionality as

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disclosed in Application Number - and then
 you give the -
 A. Right.
 Q. The question is: What product was
 involved?
 A. Product names?
 Q. Yes.
 A. I do not know the names. I can't
 remember the names. Let's put it that way. I
 can remember numbers or names.
 Q. Okay. Can you tell me what the
 "same functionality as disclosed in
 application" was?
 A. Yes. At that time all of our
 competitors was doing a frontend overlay using
 their BLT engine to actually manage the video
 using the flat frame buffer. In other words,
 they had to go into a RGB mode, true color
 mode, and treat everything as true color -
 graphics and video - which consumed a great
 deal of their bandwidth, which wasn't a very
 effective way of doing it.
 Q. Okay. Well, that wasn't true with
 respect to the Brooktree part, though, was it?
 A. Which Brooktree part? I mean,

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(1) the -
 (2) Q. 885.
 (3) A. That was a RAMDAC. That was not a
 (4) MIMI manager. Okay?
 Q. Okay.
 A. All that did was take the data
 presented to it and run it, you know - run it
 through the pipeline and display it. It
 wasn't - wasn't - the frontend - a frontend
 pipeline is when you actually take your image
 stored off-screen, then when you get ready to
 display it, you've got to bleed it onto the
 screen. They're two different processes.
 Q. Well, let's refer then back to
 Nally 3.
 A. Okay.
 Q. So if you can focus on the patent
 as opposed to the product, at least with
 respect to the patent in Nally 3, it shows
 backend processing, doesn't it?
 MR. HILL: Again, with respect to
 the patent, I'm making an objection that it
 calls for a legal conclusion.
 A. Backend processing in what sense?
 Q. (By Mr. Cordell) Well, there are

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backend pipelines in Exhibit 3, correct?
 There's a backend video pipeline there, isn't
 there?
 A. That's all I see. That's all I
 see. I see video pipeline.
 Q. But do you see a backend video
 pipeline correct?
 A. Yes.
 Q. So it's not true that all of your
 competitors weren't at least thinking about
 backend video processing, correct?
 MR. HILL: Objection.
 Argumentative. It also calls for speculation.
 Q. (By Mr. Cordell) If you know.
 A. You're mixing products. You're
 mixing products.
 Q. You still have a differentiation
 between the patent and what you know to be the
 Brooktree part, correct?
 MR. HILL: Mischaracterizes prior
 testimony.
 Q. (By Mr. Cordell) You can tell me
 yes or no.
 A. Well, let's say that - how should
 I put this? One of them is a RAMDAC. That's

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all it is. The Brooktree part is just a
 RAMDAC. Okay? The other one is a graphics
 video processor. Okay? The Brooktree part is
 only a small piece of a video subsystem.
 Q. So are you aware of any controller
 that works with the Brooktree part to create
 an entire video subsystem?
 A. Like I said, I've got - informed
 of one that did exist just prior to this
 meeting.
 Q. That's the Oak part?
 A. The Oak part. Before that, I was
 completely - I assumed that nobody ever
 designed anything for that part.
 Q. Now, bumping right back up to
 Paragraph 5, you begin the quote by saying
 about 18 weeks ago?
 A. Uh-huh.
 Q. And then you relate the incident
 involving the CTO of Trident, correct?
 A. Yeah.
 Q. So that would have put you
 roughly the fall COMDEX?
 A. Maybe that's where it was.

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(1) Q. And that would have been the fall
 (2) of 1994?
 (3) A. (Witness nods.)
 (4) Q. Now, turning to the following
 (5) page. Paragraph 7, you cite to the patent
 (6) office that you are now in possession of a
 (7) specification for a product; is that correct?
 (8) MR. HILL: Which paragraph is
 (9) that?
 (10) MR. CORDELL: It's Paragraph 7.
 (11) A. Exhibit B. Okay. Yes, that's the
 (12) statement I made there.
 (13) Q. (By Mr. Cordell) And you're
 (14) referring there particularly to the Alpine -
 (15) I'm sorry - to the Trident product, correct?
 (16) A. Yes.
 (17) MR. CORDELL: Let me have marked
 (18) as Nally 18 a document bearing Bates
 (19) Number CL10362 through 65.
 (20) (Deposition Exhibit 18
 (21) was marked.)
 (22) Q. (By Mr. Cordell) Mr. Nally can
 (23) you identify what we've marked as Exhibit 18?
 (24) A. It looks like the Exhibit B. Am I
 (25) right? Is this Exhibit B?

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(1) Q. Well, that's what I think it is,
 (2) but -
 (3) A. Yeah.
 (4) Q. - I don't - they don't ask me in
 (5) these things.
 (6) A. Okay.
 (7) Q. And the difference between
 (8) Exhibit B and Nally 18 is that the product
 (9) name is - appear on Nally 18, correct?
 (10) A. Yes.
 (11) Q. So does this refresh your
 (12) recollection, then, as to what product is at
 (13) issue in your declaration?
 (14) A. TGU19680.
 (15) Q. Again, you - well, let me just
 (16) read from it. In Paragraph 7 you state -
 (17) A. Hang on. Hang on. Okay.
 (18) Q. - this is a preliminary
 (19) specification showing how the competitor's
 (20) product now contains circuitry which performs
 (21) the exact functions as set forth in the Cirrus
 (22) Logic "Functional Specifications Alpine CDX."
 (23) Do you see that?
 (24) A. Yes.
 (25) Q. Can you explain what portions of

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(1) Exhibit B or Nally 18 - your choice - that
 (2) you were referring to there?
 (3) MR. HILL: I'll object to form.
 (4) A. It's hard to read.
 (5) (Mr. Brown left the
 (6) deposition proceedings.)
 (7) A. Maybe I can see this drawing
 (8) better.
 (9) Looking at 10363, that drawing
 (10) clearly shows a video and a graphics pipe or a
 (11) graphics output to a multiplexer going to the
 (12) display suggesting that they have gone to a
 (13) backend overlay.
 (14) Q. (By Mr. Cordell) How can you tell
 (15) that they've got a single frame buffer?
 (16) A. Knowing the natures of the devices
 (17) at the time, knowing the competition, knowing
 (18) what we was all fighting for. You knew that
 (19) they couldn't afford but a single frame
 (20) buffer. You just - call it knowledge of the
 (21) market.
 (22) Q. Well, turning to Page 10364, do
 (23) you see a backend video pipeline?
 (24) A. I really don't see anything here.
 (25) The only thing I see here is that I see a

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(1) dual-aperture frontend, but I don't see - the
 (2) drawing here doesn't tell us - doesn't tell
 (3) me anything. That's what I was looking for.
 (4) I was looking to see if I could see in that
 (5) drawing, but this drawing doesn't tell me
 (6) anything. It's too abstract.
 (7) Q. Is it just too high a level of a
 (8) diagram for you to tell anything about the
 (9) pipelines?
 (10) A. Well, I see lines going places
 (11) that I don't understand.
 (12) Q. Well, do you see anything that
 (13) looks like a backend video pipeline?
 (14) MR. HILL: Object to form.
 (15) A. I see something suspicious.
 (16) Q. (By Mr. Cordell) Okay. What's
 (17) suspicious?
 (18) A. Well, the display memory
 (19) interface. You got a 64-bit bus coming from
 (20) the frontend, and you've got a line going to
 (21) the sequencer, and you've got another line
 (22) going down to this block below the sequencer.
 (23) It looks like a 16-bit bus. That suggests to
 (24) me that there's two pipes going to that block
 (25) in there called the CRT controller.

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(1) Q. One through the sequencer and one
 (2) directly to the CRT controller?
 (3) A. Right.
 (4) Q. But I don't see any of the
 (5) elements that you identified earlier that -
 (6) A. That's why I say it's extremely
 (7) abstract.
 (8) Q. Well, I guess my problem,
 (9) Mr. Nally, is that they used your declaration
 (10) to get the patent office to jump-start this
 (11) application, and I'm searching for the
 (12) basis -
 (13) A. Well, that diagram here -
 (14) MR. HILL: I object. That assumes
 (15) facts not in evidence.
 (16) MR. CORDELL: Maybe I should
 (17) finish my question.
 (18) Q. (By Mr. Cordell) I'm searching
 (19) for the basis for your statement that, you
 (20) know, Trident had stolen your invention
 (21) basically. And is it - am I correct, then,
 (22) that it's limited to this block diagram on
 (23) Page 10363?
 (24) A. At this point this is all I see
 (25) here. Maybe I'm - if I went back and

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(1) reviewed it again in the entirety, this is -
 (2) there might be more there. I don't know. I'd
 (3) have to read it real close. I just looked at
 (4) the block diagrams real quick and scanned
 (5) through the wording.
 (6) Q. Well, to your knowledge, Cirrus
 (7) has never asserted an infringement claim
 (8) against Trident, have they?
 (9) A. To my knowledge, no.
 (10) Q. Did you ever do any analysis of
 (11) Trident's parts to determine whether or not
 (12) they infringe the 525 patent?
 (13) A. That wasn't my job.
 (14) Q. Well, do you know if anybody at
 (15) Cirrus analyzed Trident's parts to determine
 (16) whether or not they infringed the 525 patent?
 (17) A. No, I have no knowledge of that.
 (18) Q. Turn now to Tab 5, if you will.
 (19) A. Okay.
 (20) Q. Do you see the document here
 (21) that's entitled Information Disclosure
 (22) Statement?
 (23) A. Yes.
 (24) Q. Are you familiar with what this
 (25) document is?

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(1) A. Would you explain it to me?
 (2) Q. Well, I'll be happy to, but do you
 (3) know that you were under an obligation to tell
 (4) the U.S. Patent Office about any prior art
 (5) that you knew about that was relevant to your
 (6) application?
 (7) A. Yes.
 (8) Q. Did you understand that that was
 (9) something you had to do or you'd risk that
 (10) your patent would be held unenforceable?
 (11) A. Right. And ain't that what these
 (12) citations are at the front of the patent? Oh,
 (13) it's not -- the first page is missing.
 (14) Q. Well, you're looking for the cover
 (15) of the actual issued patent?
 (16) A. Yes.
 (17) Q. Okay. Well, those -- I'll
 (18) represent to you that what the patent office
 (19) does, they take all the prior art that they
 (20) find and you find; and at the end of the day,
 (21) they print them on the front of the patent.
 (22) But those are -- those are something generated
 (23) by the patent office.
 (24) But going back to Tab 5, so you
 (25) were aware that you were under an obligation

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(1) MR. HILL: Asked and answered.
 (2) Q. (By Mr. Cordell) You did?
 (3) A. To the best of my knowledge.
 (4) Q. Okay. Well, now, there are a
 (5) number of patents listed here under the Tab 5
 (6) document. Do you know where these patents
 (7) came from?
 (8) MR. HILL: Objection. Ambiguous.
 (9) A. There was a -- a patent search
 (10) relating to anything. And I'd look at all
 (11) those patents that kicked out to see if we was
 (12) relating to any of them.
 (13) Q. (By Mr. Cordell) Now, you --
 (14) well, who did the patent search?
 (15) A. Well, it was the law firm. I
 (16) don't know who.
 (17) Q. So they sent you a stack of
 (18) patents and said, This is what we found in our
 (19) search?
 (20) A. Yes. Maybe we threw in some
 (21) patents ourselves. I don't know. But I was
 (22) given a stack of patents to review.
 (23) Q. Now, you are named as a patent
 (24) applicant in a number of United States patent
 (25) applications, correct?

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(1) to tell the patent office about any prior art
 (2) that was material to your application,
 (3) correct?
 (4) A. Yes.
 (5) Q. And did you understand what
 (6) "material" meant?
 (7) A. That --
 (8) MR. HILL: We'll object here that
 (9) it calls for a legal conclusion as to
 (10) material.
 (11) MR. CORDELL: Well, we're asking
 (12) him for his understanding.
 (13) MR. HILL: You can answer as to
 (14) your understanding.
 (15) A. To my understanding, it is stuff
 (16) that -- that the patent officer could possibly
 (17) interpret as an infringement.
 (18) Q. (By Mr. Cordell) Okay. Perhaps
 (19) things that included the elements were cited
 (20) in the claims?
 (21) A. Pardon?
 (22) Q. Well, Mr. Tannenbaum was
 (23) disclosed -- was deposed in this case.
 (24) A. Okay.
 (25) Q. And in his deposition he related

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(1) A. Yes.
 (2) Q. Do you recall ever reviewing the
 (3) other applications that you were prosecuting
 (4) to determine whether or not there was any
 (5) relevant prior art in those applications that
 (6) should have been cited to the patent office in
 (7) this one?
 (8) MR. HILL: Objection. Calls for a
 (9) legal conclusion.
 (10) A. Did I go as rigorously on every
 (11) one of them as I did on this one? Is that the
 (12) question?
 (13) Q. (By Mr. Cordell) Well, no. Did
 (14) you ever go and look at the other files to see
 (15) if there was a patent that had been cited
 (16) against your application that might have been
 (17) relevant to this one?
 (18) A. On any of my others?
 (19) Q. Uh-huh.
 (20) A. No.
 (21) Q. You don't recall anybody ever
 (22) suggesting that you do that?
 (23) A. Why?
 (24) MR. HILL: Objection in that it
 (25) might call for attorney-client privileged

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(1) that he had a -- had a discussion with you
 (2) about what prior art meant and what
 (3) materiality meant. Do you remember anything
 (4) like that?
 (5) A. Oh, no.
 (6) Q. It's just like a lawyer to turn --
 (7) pass the buck.
 (8) A. I've had meetings with
 (9) Mr. Tannenbaum, but I can't remember what was
 (10) discussed in any of those meetings.
 (11) Q. Well, suffice it to say, though,
 (12) you understand you were supposed to tell the
 (13) patent office about anything that was close to
 (14) your -- your patent?
 (15) A. You had --
 (16) MR. HILL: Object to form.
 (17) A. If we suspected that we was
 (18) violating it, we had to claim it. I
 (19) understand that.
 (20) Q. (By Mr. Cordell) Well, it's not
 (21) so much violating. And I don't mean to
 (22) belabor it, but I just want to -- I just want
 (23) to know whether or not you understood your
 (24) duty of disclosure.
 (25) A. Yes.

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(1) information.
 (2) I just caution you not to reveal
 (3) the contents of communications with lawyers
 (4) for Cirrus.
 (5) THE WITNESS: Okay.
 (6) A. My question is: Why would you do
 (7) that if the patents aren't related to each
 (8) other?
 (9) Q. (By Mr. Cordell) Well, this
 (10) patent office requires you to tell them about
 (11) any prior art you know about no matter how you
 (12) learn about it. Since you're the patent
 (13) applicant, you're under this continuing duty
 (14) to disclose.
 (15) The question is: Did you ever go
 (16) and look at the other files to see if there
 (17) had been some prior art cited in those that
 (18) had not been cited and should have been cited
 (19) in this one?
 (20) MR. HILL: Objection. Calls for a
 (21) legal conclusion.
 (22) (Mr. Brown entered the
 (23) deposition proceedings.)
 (24) A. Make sure you're asking me that --
 (25) make sure I understand the question here.

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(1) Q. (By Mr. Cordell) Sure.
 (2) A. That when I filed other patents,
 (3) there was this cited at the front of the
 (4) patent. Okay? Did I go and search every one
 (5) of those on every one of the patents I filed
 (6) for? Is that what you're asking?
 (7) Q. Yes.
 (8) A. That would be a full-time job.
 (9) Q. Well, when you receive office
 (10) actions as part of your patent prosecution –
 (11) A. Yeah.
 (12) Q. – activities, do you get patents
 (13) attached to these office actions?
 (14) A. Patents attached to – what do you
 (15) mean by "office actions"?.
 (16) Q. Well, were any of your other
 (17) patent applications rejected by the patent
 (18) office?
 (19) A. Only one, a long time ago.
 (20) Q. You only received one rejection?
 (21) A. Yes.
 (22) MR. HILL: I think the witness
 (23) might be unclear on office actions versus a
 (24) final rejection.
 (25) Q. (By Mr. Cordell) Well, we'll get

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(1) to that a little later. Okay? From time to –
 (2) time did you receive communications that –
 (3) from the patent office that had patents
 (4) attached to it of any kind?
 (5) A. Like I said, I can only recall one
 (6) time ever getting anything back from the
 (7) patent office that I had to clarify.
 (8) Q. Okay.
 (9) A. There might have been times that I
 (10) forgot.
 (11) Q. I think you've – you've answered
 (12) the question, so I'll quit – I'll quit
 (13) chasing it.
 (14) With respect to the patents listed
 (15) here at Tab 5, do you recall reviewing those
 (16) personally?
 (17) A. These right here (indicating)?
 (18) Looking at the numbers and looking at the
 (19) names, I can't swear that I reviewed
 (20) everything here. I can say that I did review
 (21) everything, and that's all I can say. We – I
 (22) did review patents that – a due diligence
 (23) type thing.
 (24) Q. Okay. Can you tell us when that
 (25) occurred?

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(1) A. Exactly when, I can't say. I will
 (2) say it was – it seems like it was kind of
 (3) close to the end of the process.
 (4) Q. And can you describe what you did
 (5) in this due diligence review?
 (6) A. I just read the patents and
 (7) determined how I was not violating them. Once
 (8) I saw that – saw something there that I felt
 (9) that it was clearly – we had gone beyond what
 (10) was – did not relate – as soon as I
 (11) determined that there was a clear claim, I put
 (12) that one aside and went to the next one. I
 (13) didn't read every one of those things through
 (14) and through.
 (15) Q. Well, when you say – I just want
 (16) to clarify. Were you worried about infringing
 (17) these other patents?
 (18) A. Yes.
 (19) Q. Okay. And that's why you reviewed
 (20) them?
 (21) A. Yes.
 (22) Q. Do you recall ever going through a
 (23) stack of patents and explaining to anyone why
 (24) your patent, your patent application that
 (25) resulted in the 525 patent, would be valid

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(1) notwithstanding the existence of those
 (2) references?
 (3) MR. HILL: Objection to the extent
 (4) it calls for attorney-client privileged
 (5) information.
 (6) If you did that with an attorney,
 (7) I don't want you to reveal the contents of
 (8) that communication.
 (9) THE WITNESS: Okay.
 (10) MR. HILL: But if it was somebody
 (11) else at Cirrus, of course you can tell him.
 (12) A. No. Nobody at Cirrus.
 (13) Q. (By Mr. Cordell) Well, the way
 (14) Counsel set that up, I don't know how we can
 (15) get out of that. I mean, you say no. I'm
 (16) going to assume that you talked to no one in
 (17) that –
 (18) A. I can't remember if I talked to a
 (19) lawyer or not.
 (20) Q. Okay.
 (21) A. Okay. I do know that nobody at
 (22) Cirrus –
 (23) Q. And you just don't know whether or
 (24) not you ever talked to them?
 (25) A. Yeah, I really don't know.

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(1) Q. All right. That will get us –
 (2) that will get us beyond it anyway.
 (3) A. Okay.
 (4) Q. Turn to Tab Number 7 just
 (5) briefly.
 (6) A. Okay.
 (7) Q. This is an office action, by the
 (8) way. Do you recall ever reviewing one of
 (9) these before?
 (10) A. Not to my knowledge. Is this
 (11) actually an action against this patent?
 (12) Q. Yes. And before you answer, look
 (13) at Tab Number 8 because you have another
 (14) declaration in this file. I don't want you
 (15) to –
 (16) A. Tab Number 8? Okay. Okay.
 (17) Q. Do you recall signing the
 (18) declaration of Tab Number 8?
 (19) A. Specifically? No. But that is my
 (20) signature.
 (21) Q. Well, you see the documents
 (22) identified here at Paragraphs 5 through 7?
 (23) A. Okay. Yeah.
 (24) Q. Do you recall reviewing those
 (25) documents?

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(1) A. I cannot say I recall reviewing
 (2) them. If I looked at them again, I could tell
 (3) you if I reviewed them. I have to see what
 (4) they are.
 (5) Q. Let's turn to Tab Number 9.
 (6) A. Okay.
 (7) Q. Now, here we have another
 (8) Information Disclosure Statement, correct?
 (9) A. Okay.
 (10) MR. CORDELL: Let me have marked
 (11) as Nally 19 a multipage document bearing Bates
 (12) Numbers CL5009 through CL5013.
 (13) (Deposition Exhibit 19
 (14) was marked.)
 (15) Q. (By Mr. Cordell) Mr. Nally, can
 (16) you identify what we've marked as Nally 19?
 (17) A. Okay. Okay.
 (18) Q. Can you?
 (19) A. Can I what?
 (20) Q. Can you identify this?
 (21) A. It looks like the Brooktree
 (22) patent.
 (23) Q. I note the fax cover sheet
 (24) identifies John Schafer. Is that the
 (25) colleague that you work with at Pixel?

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(1) A. Yes.
 (2) Q. And do you know what the
 (3) significance of redo is?
 (4) A. I have no idea what that means.
 (5) Q. Does the form of this
 (6) communication indicate to you its source?
 (7) A. No.
 (8) Q. I note that the date on the cover
 (9) is 2 October 1995. Do you see that?
 (10) A. Yes.
 (11) Q. Does this refresh your
 (12) recollection of when you first encountered
 (13) the Siann patent?
 (14) A. No, it doesn't.
 (15) Q. Well, referring back to Tab 9 in
 (16) Exhibit 17 –
 (17) A. Tab 9?
 (18) Q. – here you do inform the patent
 (19) office of the existence of the Siann patent,
 (20) correct?
 (21) MR. HILL: Objection to form, and
 (22) that mischaracterizes his communication.
 (23) A. The question is what now?
 (24) Q. (By Mr. Cordell) Well, I mean, is
 (25) this – is this the occasion on which you or

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(1) to run out, so why don't we take our afternoon
 (2) break.
 (3) THE WITNESS: Yeah, good break
 (4) time.
 (5) THE VIDEOGRAPHER: We're off the
 (6) video record, 4:46.
 (7) (A recess was taken.)
 (8) THE VIDEOGRAPHER: We're on the
 (9) video record, 5:02, Tape 4.
 (10) Q. (By Mr. Cordell) Mr. Nally,
 (11) let's – let's now turn to Tab Number 10, if
 (12) you will, and turn back to the third page of
 (13) that section. And do you see the claim that
 (14) was Number 12 and it's been marked through?
 (15) It's Number 13.
 (16) A. Yes.
 (17) Q. I'd like to get your understanding
 (18) of some of the terms in this claim. It starts
 (19) off with: Circuitry for writing selectively
 (20) each word of received data into a selected one
 (21) of on-screen and off-screen memory spaces of a
 (22) frame buffer.
 (23) Do you see that?
 (24) A. Uh-huh.
 (25) Q. Can you tell me what "circuitry"

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(1) your representative informed the patent office
 (2) about the existence of the Siann reference?
 (3) MR. HILL: Objection. The
 (4) document speaks for itself.
 (5) A. Yeah. I can only – I mean, I
 (6) know nothing. I don't remember, you know,
 (7) anything here. My signature is not on it.
 (8) Q. (By Mr. Cordell) Okay. Do you
 (9) recall discussing the Siann patent with anyone
 (10) in the spring of 1995?
 (11) MR. HILL: Objection to the
 (12) extent that it might call for privileged
 (13) communications with your attorney at that
 (14) time.
 (15) Q. (By Mr. Cordell) I'm sorry. I'll
 (16) modify my question to the end of 1995 or the
 (17) beginning of 1996.
 (18) A. I can't remember any conversations
 (19) about that. You know, exactly when I became
 (20) aware of it and all that kind of stuff, that
 (21) was just too many years ago. And this
 (22) document doesn't do anything to refresh my
 (23) memory.
 (24) Q. Now, look at Page 2, if you will.
 (25) A. Okay.

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(1) for writing selectively" means?
 (2) MR. HILL: Again, the standing
 (3) objection that I had is still standing, that
 (4) it calls for a legal conclusion.
 (5) A. I don't really know what selective
 (6) words they're talking about here. I'd
 (7) probably have to read more to find out.
 (8) Q. (By Mr. Cordell) That doesn't
 (9) have any – any plain meaning to you?
 (10) A. The sentence by itself doesn't
 (11) stand by itself, no.
 (12) Q. Well, does the phrase "selected
 (13) one of on-screen and off-screen memory spaces
 (14) of a frame buffer" have any meaning to you?
 (15) A. I still can't distinguish what the
 (16) data you're talking about is.
 (17) Q. Well, this would be received data,
 (18) perhaps?
 (19) A. Yeah, it's received data. That's it
 (20) data coming from the host. Okay. But it
 (21) doesn't tell me what kind of data it is.
 (22) Q. Let's see. Does it matter what
 (23) kind of data it is?
 (24) A. Well, you've got to figure out
 (25) why – can I just read ahead to see what

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(1) Q. And I'll ask you to read to
 (2) yourself the full paragraph that is presented
 (3) there.
 (4) A. Okay.
 (5) Q. Does this refresh your
 (6) recollection of any discussions you may have
 (7) had about the Siann patent?
 (8) A. I see some wording here that I
 (9) have never used. Does that help?
 (10) MR. HILL: He's asking you a yes
 (11) or no –
 (12) A. No.
 (13) MR. HILL: – question,
 (14) Mr. Nally. As if it refreshes your
 (15) recollection, tell him so.
 (16) A. No. No, it doesn't refresh my –
 (17) all I'm saying is that I do not remember any
 (18) of this, and I don't see – well, no.
 (19) Q. (By Mr. Cordell) And your
 (20) testimony is that the language here is not
 (21) language that you would normally use?
 (22) A. That's right. That's what I'm
 (23) looking for.
 (24) MR. CORDELL: Okay. The
 (25) videographer tells us that the tape is about

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(1) they're talking about?
 (2) Q. Oh, sure. Absolutely.
 (3) A. Because I've got to figure out
 (4) what they're trying to – what's trying to be
 (5) said here.
 (6) Q. Absolutely.
 (7) A. And it's been a long time since I
 (8) was involved in this. Okay.
 (9) Q. Okay. Do you recall now what the
 (10) circuitry for writing selectively is?
 (11) A. I can't recall this document or
 (12) what was going on here, but I can tell you the
 (13) way I interpret what's written.
 (14) Q. That's fine.
 (15) MR. HILL: That's your
 (16) understanding.
 (17) THE WITNESS: Right.
 (18) A. What we're talking about here is
 (19) we're talking about a dual-aperture frontend,
 (20) a first video port for receiving video and
 (21) graphics data, a word of said data received
 (22) with an address of said memory spaces
 (23) directing said word to be processed a word
 (24) of video data or a word of graphics data.
 (25) Q. (By Mr. Cordell) So this would be

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(1) a -
 (2) A. The second port is for receiving real-time video data. In other words, we got one port going to the - the first port is to PCI bus interface. The second port is to VAFC or the V-port interface.

Q. Okay. So the first port is defined by the PCI specification?

A. Yeah.

Q. And the second port is defined by the VAFC specification?

A. That's one way of saying it. In other words, one of them is a host interface.

The other one is a real-time data interface.

Q. But what I'm looking for, though, is: Is your understanding of what's written after "a first port" a description of a PCI specified interface?

A. A PCI interface would fall under this definition.

Q. PCI interface requires that you have data associated with a particular address field and graphics associated - strike that.

PCI specification requires that

your graphics data is associated with a

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(1) particular address field and video data associated with a different address field, correct?
 (2) A. Basically what they're saying is that every piece of information going to the frame buffer has to have an address to tell you where to put it.

Q. And it's also telling you that the address range indicates to the controller whether it's video or graphics?

A. That does not - it's not spelled out in this statement.

Q. Well, that is true in the PCI specification, though, isn't it?

A. Not to my knowledge.

Q. It is not your understanding in the PCI specification, the PCI video specification, that certain address fields are reserved for video and certain address fields are reserved for graphics?

A. PCI video specifications?

Q. Yes.

A. I'm not aware of such a specification.

Q. Well talk more about that later.

H

D

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(1) but let me - let me get back to the first limitation there, which is the circuitry for writing selectively. You said you were going to read ahead -

A. Yes.

Q. - and see if you could get some context for that. Were you able to find any context?

A. Basically it says that writing selectively - in other words, each word of data has a different address. That's the writing - like I said, this is lawyers' terminology that this says - in my mind, an engineer's mind, saying that every word in memory has a different address.

Q. Isn't that kind of a tautology? I mean, wouldn't - isn't it - I mean, can you think of a structure wherein a word of data would not have an address?

MR. HILL: I'm going to object to form.

Q. (By Mr. Cordell) Isn't that kind of a basic requirement of an addressable memory scheme?

MR. HILL: Same objection.

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(1) A. Let me think about that. It depends on what you call memory. FIFO is memory. It violates that statement. So once again, it all depends on -
 (5) Q. (By Mr. Cordell) Well, let me just ask it this way, Mr. Nally: Are you aware of a frame buffer that you've ever been exposed to that didn't have an address associated with each word of data?

(10) A. No.

Q. Let's jump down to the phrase that reads: Circuitry for generating an address associated with a selected one of said memory spaces for a word of said real-time video data.

(16) Do you have an understanding of what this refers to?

(18) A. Yes.

Q. What's that?

(20) A. That is a video window control mechanism where you take your syncs and you know what address to generate based on your sync information on that real-time video port.

Q. Okay. Where do the syncs come from?

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(1) A. From the source.
 (2) Q. From the video source?
 (3) A. Right.
 (4) Q. And where does the specification for the address ranges for that video window come from?

(7) A. There are no - I mean, that's determined by software.

(9) Q. Okay. Where is that software resident?

(11) A. In the driver.

(12) Q. Where is the driver resident?

(13) A. What do you mean?

(14) Q. What processor executes that drive?

(16) A. The CPU.

(17) Q. And that's back in the host?

(18) A. Yes.

(19) Q. So, you know, if you're looking - let's take the 5440 as an example. If you're looking for the circuitry that generates that address -

(23) A. Okay.

(24) Q. - where is that circuitry?

(25) A. Okay. Maybe I misunderstood what

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(1) you're saying. On the video - on the video port, the host program is up at the registers that determine what that address is.

(4) Q. Okay. So is that the circuitry for generating an address?

(6) A. Yes.

(7) Q. That would be in the host?

(8) A. No. That's in the graphics

(9) controller. It's in this - the device that

(10) this is a part of.

(11) Q. Okay.

(12) A. The real-time port has to have a device for generating addresses for the data coming through that port.

(15) Q. All - all the - the data has to get an address before it can enter the frame buffer, correct?

(19) A. Right.

(19) Q. So the question is: What in particular, if you can do it, is the circuitry that generates that address?

(22) A. Okay. It's the XY windowing scheme.

(24) Q. It's the XY windowing scheme. Now, let's turn to the back of

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(1) this little exhibit. If you look right in
 (2) front of the tab marked Issuing Fee, you're
 (3) going to find some - some drawings.
 (4) A. Okay.
 (5) Q. If you can, can you tell me what
 (6) element or elements in these drawings
 (7) corresponds to the circuitry for generating an
 (8) address that you've been talking about?
 (9) A. Okay. Take a look at Figure 1:
 (10) 109 between the video source, 104, and the VGA
 (11) controller 105. Part of that 109 is the sync
 (12) signals, A-sync and V-sync.
 (13) Come down to Figure 5. You see
 (14) those signals. You see them?
 (15) Q. I'm sorry. Can you do that
 (16) again? I was - I was lost in drawing land.
 (17) A. Okay. Going up to Figure 1 you
 (18) see a line with an arrow on it labeled 109.
 (19) That's your video - real-time video port. A
 (20) part of that video port is down in Figure 5
 (21) where you see V-sync and A-sync.
 (22) Okay. Another part of that is
 (23) something called a V-clock, which you also see
 (24) down here. What it is - you see two
 (25) counters, and that is the circuitry that

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(1) controls the address. You generate from those
 (2) two counters an X-position, a Y-position. And
 (3) that circuit, 105 - that Figure 5 generates
 (4) the address.
 (5) Q. Well, the output of this circuit
 (6) is input to the P-MUX, correct?
 (7) A. Where is the P-MUX?
 (8) THE WITNESS: Okay. Let's see if
 (9) that's it.
 (10) MR. HILL: Just to speed it up a
 (11) little bit, I'm pointing the witness to
 (12) Figure 3, Block 304.
 (13) MR. CORDELL: As much as I look
 (14) forward to taking your deposition, Mr. Hill, I
 (15) don't think - I'm not so sure the witness is
 (16) going to agree with you.
 (17) A. Okay. 305 in Figure 3 inside of
 (18) 221 is the same as 305 in Figure 5, and that
 (19) output goes to select the over - let's see.
 (20) Q. (By Mr. Cordell). You were - you
 (21) were looking for the section that assigned the
 (22) addresses to the incoming video in the live
 (23) port.
 (24) A. Right. Okay. Do you see 222?
 (25) Q. Yes.

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(1) A. VDM 1. See the 308? You see the
 (2) 308 in Figure 5?
 (3) Q. Yes.
 (4) A. Okay. They're the same. Okay.
 (5) Q. I'll tell you what - what I'm -
 (6) and, again, I'm not trying to do anything
 (7) other than speed it up myself, but I am unable
 (8) to find an element set forth in the drawings
 (9) that shows an operational association with the
 (10) input video port sufficient to assign these
 (11) addresses.
 (12) When you point me to Figure 5,
 (13) what I see is a subset of Figure 3, which
 (14) looks like output control.
 (15) A. Okay. Okay. Back up. 305 is a
 (16) comparative, has a one-bit output. Okay? The
 (17) X-screen position and the Y-screen position,
 (18) those are the addresses. That pinpoints you
 (19) on the screen. Okay? That's your position.
 (20) If you turn to Figure - Figure 2,
 (21) if you go down, you'll see 213. You see a
 (22) line coming out of the side of it going over
 (23) to the overload control. That is P value.
 (24) Okay. That's that P input. Okay?
 (25) Coming out of the 213, which is

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(1) not shown, is the address associated with the
 (2) right buffer that goes - that receives video
 (3) port interface. So what's missing out of this
 (4) drawing is really - the right buffer is a
 (5) two-part buffer, is an address and data.
 (6) Q. And that's just missing out of the
 (7) drawings?
 (8) A. Yes.
 (9) Q. Well, is -- are the addressing
 (10) features of the V-port particularly difficult
 (11) to implement?
 (12) A. No, not really.
 (13) Q. Is it something that one of
 (14) ordinary skill --
 (15) A. Yes.
 (16) Q. -- would be able to do?
 (17) A. With this right here, yeah, anyone
 (18) with ordinary skill knows that you take these
 (19) two addresses and add them to an offset
 (20) value. What you do - the formula is quite
 (21) straightforward. You take your offset value,
 (22) you add it to the Y-position count times the
 (23) pitch, and then you add the X-count.
 (24) MR. HILL: The objection I wanted
 (25) to make was that one of ordinary skill is a

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(1) legal conclusion.
 (2) Q. (By Mr. Cordell) Let's try it
 (3) another way then. Mr. Nally, just so I'm
 (4) clear, it is your testimony that the details
 (5) of implementation in the video port would be
 (6) something that any reasonably competent
 (7) videographic controller engineer should be
 (8) able to accomplish?
 (9) A. Yes.
 (10) Q. And they would be able to do that
 (11) using well-known concepts?
 (12) MR. HILL: Objection. Ambiguous
 (13) as to well known and what time.
 (14) MR. CORDELL: Well, let me try
 (15) that again.
 (16) Q. (By Mr. Cordell) At the time that
 (17) you filed the 525 patent -
 (18) A. Yeah.
 (19) Q. -- which was in January of 1995,
 (20) is it true that a reasonably competent
 (21) videographic controller engineer could
 (22) implement the V-port features of the 525
 (23) patent using concepts such as the VAFC
 (24) specification?
 (25) MR. HILL: Objection. Calls for

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(1) speculation and possibly expert testimony.
 (2) Q. (By Mr. Cordell) You can answer
 (3) it.
 (4) A. It's the same concept used in the
 (5) CRT controller that's been used since we've
 (6) been rastering data out of a frame buffer.
 (7) You've got to generate an address to go get
 (8) the data out of the frame buffer to print on
 (9) the screen. You use the same concepts to put
 (10) raster data into the frame buffer.
 (11) Q. So is the answer to my question,
 (12) yes, a reasonably competent engineer would be
 (13) able to do this?
 (14) A. Yes.
 (15) Q. Now, you've got to jump down two
 (16) clauses here, again, because of kind of the
 (17) way patent lawyers write. So the one in
 (18) brackets, it turns out, doesn't count
 (19) anymore. That means that it's been stricken
 (20) from the patent.
 (21) MR. HILL: Are we back to Tab 10?
 (22) MR. CORDELL: Yes, we're on
 (23) Tab 10.
 (24) A. And we're on what? Thirteen?
 (25) Claim - is it -

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Q. (By Mr. Cordell) Yeah, it's Page 4 - 49.
 A. Forty-nine? Okay.
 Q. Now, the next clause reads: Circuitry for selectively retrieving said words of data from said on-screen and off-screen memory spaces as data is rastered for driving a display.
 Do you see that?
 A. Yes.
 Q. The question I have is: What does - what does the term "is rastered" mean to you?
 A. Rastered means that you're - you're presenting data to a device without an address, and that device is expected to put that data in a two-dimensional space line-by-line.
 Q. So under the rastering scheme you just described, there is a starting point, correct?
 A. Yes.
 Q. And then everything after that starting point simply follows one byte after the next?

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A. One pixel after the next.
 Q. Thank you. One pixel after the next. And there's no further framing information until you get back to the beginning point again?
 A. No. You have framing information with every line.
 Q. Okay. Now, that sounds like you're describing something a little more to rastering than I thought you were.
 A. No. There's two framing controls: a vertical and a horizontal. That's the reason they call them H-sync and V-sync. As you're going this way (indicating), you have to have some kind of indication to know when to go back and start on the left side again.
 Q. So is it true, then, that your understanding of the term "rastered" permits there to be additional control signals fed into the circuit?
 A. Such as?
 Q. H-sync and V-sync.
 A. Yeah. That's part of the rastering. You can't raster without H-sync or

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V-sync. You've got to have some way to frame two-dimensional data.
 Q. Well, then, now let's drop down then to the clause that begins "a video backend pipeline." Do you see that?
 A. Uh-huh.
 Q. And it reads: A video backend pipeline for processing other ones of said words of data representing video data retrieved from said frame buffer, said circuitry for retrieving always rastering a stream.
 Do you see that?
 A. Uh-huh.
 Q. Now, what do you understand the term "always rastering" to mean?
 A. I would say that they are maintaining a live video stream.
 Q. Well, can you maintain a live video stream with pauses in the data field?
 A. Yes.
 Q. For example, whenever you have to present a V-sync, there would be a pause in the data stream, correct?
 A. There's other pauses as well.

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Q. Okay. Well, I'm just wondering how we drive "rastering" with "always rastering" under those circumstances.
 A. Because always rastering means that you are constantly putting a steady frame rate - a steady frame rate. If that picture is a small picture in the middle of a screen, you're not rastering when you're painting up here (indicating).
 MR. HILL: No. You should look carefully at that claim note right there and note what is always being rastered whether it's video or graphics.
 MR. CORDELL: Let me -
 THE WITNESS: Oh.
 MR. CORDELL: - see if I can clarify that.
 THE WITNESS: Oh, okay. I'm sorry. This is - I should read ahead. I'm getting tired.
 A. This is not video. This is graphics. Always rastering a stream of data from said frame buffer to said graphics like in pipeline.
 I was talking about video, live

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video. I didn't finish reading it. We're talking about graphics here.
 Q. (By Mr. Cordell) Understood.
 A. And if you pause in rastering graphics, the only time you can pause is during the sync period. The stream - just like you said, when you're resyncing - you know what I mean by resyncing?
 Q. Yes.
 A. You're - technically, the stream halts or it pauses, but you're still - that's all part of the rastering mechanism.
 Rastering is the whole thing.
 Q. So by always rastering, you mean that you are continuously clocking out pixels from memory into the graphics pipeline?
 A. Into the graphics pipeline?
 Okay. We're getting down to splitting hairs again. Remember the sequencer. You've got a lot of things going on in memory at the same time. You're not steadily pulling pixels out like this. You've got a FIFO. You go in and you grab a big hunk of memory and you pull it out and put it in the FIFO and let the other system do something else. Okay?

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So when they say arresting a stream, they're not saying they're constantly hammering the memory. They're not constantly hammering the memory. They're keeping a pipeline fed. That's the purpose of the FIFO, is to keep that pipeline fed without - and still giving the rest of the system memory access, memory bandwidth.
 Q. Well, I guess the problem that I have is what the claim says is always rastering.
 A. Yeah. And remember just the definition of rastering. Rastering is the whole thing. Okay? As long as you keep that needle moving, you're constantly steadily rastering. Now, if you've got a buffer over here that allows you to do something over here so that you can do this, then you're still steadily streaming.
 Q. Turn the page, if you will, to Claim 15. Now, Claim 15 describes four modes of operation. Do you see that?
 A. Yes.
 Q. Can you tell me whether or not the Alpine CDX included four modes of operation?

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(1) A. I can't recall.
 (2) Q. Would it help you to review the
 (3) Alpine CDX specifications that we've marked?
 (4) A. Not really because I'd have to see
 (5) the final spec - I mean, the final - what do
 (6) they call it - customer reference guide to
 (7) see what was finally implemented.
 (8) Q. Okay. Well, I'm really thinking
 (9) back, though, to the very early
 (10) specifications. Was there any attention paid
 (11) to these various modes of operation in the
 (12) original specifications?
 (13) A. Let me see what they are. Do you
 (14) want to take them one at a time?
 (15) Q. Sure.
 (16) A. The first mode is not a VEGF. The
 (17) first mode is not there. Okay. The second
 (18) mode is there.
 (19) Q. Was there?
 (20) A. It was in the original
 (21) specification. Let me go back to the second
 (22) one. I'm getting tired here. The words are
 (23) running together.
 (24) Pass a word of data output from
 (25) said video pipeline when said display raster

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(1) reason I'm reluctant to answer is because what
 (2) I proposed and what was implemented, I do
 (3) not - I cannot guarantee you that everything
 (4) I proposed was implemented.
 (5) Now, I can't even recall if I
 (6) proposed those modes or not right now, but -
 (7) so I do know that there was the window, the
 (8) overlay, and there was an alpha key mode. And
 (9) I can't determine that from this reading what
 (10) he's trying to say.
 (11) Q. Let's - let me suggest this: Why
 (12) don't we - why don't we go on to some other
 (13) subjects, and we can revisit this in the
 (14) morning when you're -
 (15) A. A little bit fresher.
 (16) Q. - fresher and -
 (17) A. Yeah.
 (18) Q. Because I sympathize with the long
 (19) day.
 (20) MR. CORDELL: Let me -- let me
 (21) have marked as Nally Exhibit Number 20 a
 (22) single page document bearing Bates Number
 (23) CL4897.
 (24) (Deposition Exhibit 20
 (25) was marked.)

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(1) scan has reached a display position
 (2) corresponding to a window and a word of data
 (3) from said graphics pipeline when said display
 (4) raster is -- okay. Yes. Okay. That was -
 (5) that was the window.
 (6) Third one: Pass a word of data
 (7) output from said video pipeline when said
 (8) display raster scan has reached display
 (9) position corresponding to a window and a
 (10) corresponding word of data from said graphics
 (11) pipeline matches a color key - okay. So
 (12) that's the overlay mode.
 (13) And the fourth mode: What does it
 (14) say when said A - what does the "A" mean
 (15) that's in brackets?
 (16) Q. Oh, that means that it's been
 (17) struck from the claim.
 (18) A. Okay.
 (19) MR. HILL: Maybe Mr. Nally can be
 (20) given time overnight to review this and be a
 (21) little more useful.
 (22) Q. (By Mr. Cordell) Well, can you -
 (23) can you answer this last question?
 (24) MR. CORDELL: And we can talk
 (25) about that.

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(1) Q. (By Mr. Cordell) Can you identify
 (2) what we've marked as Nally 20?
 (3) A. It looks like something
 (4) handwritten to John Schafer and myself from
 (5) David Keene.
 (6) Q. Do you recall receiving this?
 (7) A. No, I do not.
 (8) Q. Now, in it Mr. Keene identifies
 (9) two patent applications, correct?
 (10) A. Yes.
 (11) Q. Do you recall which two patent
 (12) applications he was talking about?
 (13) A. Looking at the name, I know that
 (14) they're related to the flat panel people,
 (15) assuming that this is something to do with
 (16) something that they were working on in the
 (17) depression area.
 (18) MR. HILL: Mr. Nally, don't
 (19) speculate.
 (20) THE WITNESS: Okay. Okay. I
 (21) won't.
 (22) MR. CORDELL: Let me have marked
 (23) as Nally 21 a multipage document bearing Bates
 (24) Numbers AT1027995 through 28014.
 (25) (Deposition Exhibit 21 was marked.)

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(1) A. Right now I'm kind of tired.
 (2) You're very particular about words.
 (3) Q. (By Mr. Cordell) Well, let me say
 (4) this: When this is all over, you and I will
 (5) hunt down the guy that wrote these, and we'll
 (6) give him what for. But the -
 (7) A. I know what he's trying to say,
 (8) but I want to be absolutely sure that -
 (9) Q. Sure.
 (10) A. Yeah.
 (11) Q. And what I'm going to suggest is
 (12) that maybe we break a little earlier than we
 (13) planned because I sense that you're tired, and
 (14) the last thing I want you to do is to give us
 (15) testimony that you have to go back later and
 (16) try to change and whatnot, but let's try to
 (17) get through this last thing, if we can.
 (18) A. Yeah. As long as I don't have to
 (19) read.
 (20) Q. Well, I mean, you know, do you
 (21) recall there being four operating modes in the
 (22) Alpine CDX?
 (23) A. I can't really - when you say the
 (24) Alpine CDX, I can't remember exactly what was
 (25) implemented. That's what's got me -- the

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(1) MR. HILL: Where are we at?
 (2) Twenty?
 (3) MR. CORDELL: Twenty-one.
 (4) MR. HILL: Okay.
 (5) Q. (By Mr. Cordell) Mr. Nally, can
 (6) you identify what we've marked as Exhibit 21?
 (7) A. Yes. It's a patent, Cirrus Logic
 (8) patent, named Variable Pixel Depth and Format
 (9) for Video Windows.
 (10) Q. Do you recall ever seeing this
 (11) before?
 (12) A. I have. I saw it for the first
 (13) time due to this process.
 (14) Q. And by "this process," you mean
 (15) this lawsuit?
 (16) A. Yes.
 (17) Q. Well, can you tell me when? Don't
 (18) tell me who you talked with about it, but tell
 (19) me when you became aware of this patent.
 (20) A. If I told you that, you'd know
 (21) who.
 (22) Q. Well, was it within the last two
 (23) weeks?
 (24) A. Yes.
 (25) Q. Right. That does tell me who you

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talked with.

I note that in Mr. Keene's fax it - it relates to a patent application filed 4-27-94, which is awful close to the filing date of Nally 21. Do you see that?

MR. HILL: Objection. That assumes facts not in evidence. There's no indication this is a fax.

MR. CORDELL: Huh?

THE WITNESS: Oh, yeah.

Q. (By Mr. Cordell) Oh, I'm sorry. I thought you said that Nally 20 was a fax. Was it - was it something different?

A. Nally 20?

Q. Yes.

A. The dates? What about the dates?

Q. Your counsel seemed to be pointing out that I was calling this a fax when it may not be.

A. Yeah.

Q. Do you recall how you received Nally 20?

A. I don't recall receiving it. Like I said, a lot of information was directed to me that I either never read or never got or

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read and shelved.

Q. Well, Mr. Keene identifies Vlad Bril as an inventor, correct?

A. Yes.

Q. Mr. Bril was one of the engineers out in Fremont working on the flight panels, correct?

A. Yes.

Q. Are you familiar with the flight panel problems?

A. Yes.

Q. Do you know whether or not they use a so-called tagged memory scheme to differentiate between video and graphics?

MR. HILL: I'll object to form.

You can answer.

A. Looking at this last night, I saw that they were. I wasn't aware that they were - I knew they was doing something, but I wasn't aware - I wasn't privileged to what they were doing.

Q. (By Mr. Cordell) I note that this application was filed about ten months before your application was filed. Do you know whether or not the folks working on the flight

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panel controllers were ahead of you in their development process?

MR. HILL: I'll object to form.

A. We were parallel. Who was ahead, I don't know.

Q. (By Mr. Cordell) Do you recall the first product they came up with?

A. I can narrow it down to one of two.

Q. Okay. What are they?

A. Be the Viking or the Nordic. I don't know which one came first.

Q. Do you have any information about the innerworkings of the Viking product?

A. Very vague even then.

Q. Well, did they - did they utilize backend processing in the Viking product?

A. Yes.

Q. Did they utilize a shared frame buffer?

MR. HILL: I caution you not to speculate, Mr. Nally. If you know, please tell him.

THE WITNESS: Okay.

A. It was - it was -- how do you

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describe this? They - they stored the video in a compressed form. That's the best way to describe it.

Q. (By Mr. Cordell) Where did they store it in a compressed form?

A. In the frame buffer.

Q. Right along beside the graphics data?

A. Yes.

Q. And was that also true for the Nordic product line?

A. Yes.

Q. So would you characterize the Viking product as utilizing a multiformat frame buffer?

A. That's - you're splitting hairs; but by definition it didn't because it stored it in a compressed form, not a native form.

Q. I see. So if the video is stored in compressed form, you don't find that to be a multiformat frame buffer?

A. In my opinion, no.

Q. What about the Nordic product line? Did it utilize a multiformat frame buffer?

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A. I cannot remember when they followed the Alpine design.

Q. Can you give me a relative time frame on the Viking product line?

A. No, I really don't.

Q. What about Nordic?

A. Really all I can say is that we - on that trip, the marketing trip, is that we was previewing both products to the customer.

Q. Both the Alpine and the Nordic?

A. Right.

Q. I just want to make sure I'm clear. Did the Nordic product - you store uncompressed video in the frame buffer?

A. Not to my knowledge.

Q. At the time you were developing the Alpine CDX, did you exchange information with Mr. Bril and his team that were working on the Nordic and Viking products?

A. Every time they found out I was in the building, they hunted me down and asked me a bunch of questions.

Q. Sort of picked your brain?

A. That's what they were doing.

Q. Might as well be lawyers.

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Well, did you share with them the idea of using a shared frame buffer and backend processing?

A. Yes.

Q. And do you know if they had already incorporated those concepts into the Viking or Nordic lines?

A. I could tell by the questions they was trying to figure out how to do it.

Q. Okay. What was it that made you think that they were trying to figure out how to do it?

A. A lot of color space conversion

questions.

Q. Wouldn't they need the same color space conversion questions on the frontend processor?

A. Yes, they would. I just made an assumption, I guess.

Q. Who would you say is the most knowledgeable person about the Viking or Nordic product lines at Cirrus today?

A. At Cirrus today? I don't even know who's there today.

Q. Okay. Well, then, at any time.

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(1) A. Best overall knowledge? I would
(2) say it would be between Vlad Bril and Alex
(3) Egli, E-g -

(4) MR. HILL: Egli.

(5) A. Egli.
(6) Q. (By Mr. Cordell) Right there on
the patent.

(7) Do you know where either of those
two gentlemen are employed today?

(8) A. No.

(9) MR. CORDELL: We're approaching
10:00 o'clock, and out of consideration for the
11: witness who I think has indulged us today, I
12: would propose that we adjourn as long as we
13: can get back here maybe at 8:00 o'clock in the
14: morning.

(15) (11:45) THE WITNESS: I've got an
16: flight to catch tomorrow, so do you think we
17: can do it by 11:00? I've got a definite -

(18) it's a hard cutoff at 11:00.

(19) MR. CORDELL: Sure. I mean, we
20: can start earlier. I just don't want to drag
21: you down here at 5:00 a.m.

(22) THE WITNESS: I will probably come
23: in earlier and get my ticket and everything

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(1) before I come here. So 8:00 o'clock will be
2 good because I can come get everything taken
3 care of.

(4) MR. CORDELL: Okay. Well, then,
5 we'll see you tomorrow morning.

(6) THE VIDEOGRAPHER: We're off the
7 video record, 5:51.

(8) (End of Volume II.)

Signature of the Witness

(16) SUBSCRIBED AND SWORN to before me this _____
17: day of _____, 19 _____.
18:

NOTARY PUBLIC

(19) My Commission expires: _____
20:
21:
22:
23:
24:
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